

# PCPlus CAMPAIGN

➔ Problems with an acne-ridden Palm PDA, a modem vs ISDN issue for Time plus an online shopping mix-up with Dabs Direct

## No Time for ISDN

Dear **PC Plus**

Recently at the Gateshead branch of Time Computers, I negotiated the purchase of a 700-7 CD-R, including an executive upgrade, at a total cost of £1,407.65. I was told that it would take between one and two weeks for delivery as the computer would be built to order – which wasn't a problem. I then enquired whether it would be possible to have an ISDN card fitted instead of a modem, as I use BT's Home Highway service. The salesman thought not. I then pointed out that if the CD was going to be built to order, then surely the replacement of a modem with an ISDN card should present no difficulties. Because it was a Sunday the salesman had no way of checking, but he did give me Time's customer helpline and suggested that I telephone the next day.

I telephoned Time's customer helpline this morning and told them my problem, only to be informed that there was no way that they could exchange of a modem for an ISDN card. I then requested that when they build my PC not to install the modem, leave it boxed, so that I could use it as a bartering tool with my local hardware supplier. Again, the answer was a very firm negative. I then asked that as the PC could not be used for accessing the Internet using Home Highway, could I cancel the order? At last! an answer in the affirmative.



↑ On-line shopping is usually fast and error-free but occasionally mistakes can happen. Even big companies such as HP and Dabs get it wrong sometimes.

↓ With the growth of high-speed Internet access, we feel that more and more companies should offer ISDN-type cards instead of modems.

I have not lost out financially and, in terms of customer horror stories, my experience is pretty small beer. Nevertheless, I find it hard to believe that:

1. Time is so inflexible that it is unable to meet which, on the surface, seems to be a simple request.
2. An order of over £1,400 can be dismissed so lightly.
3. Time appears to have ignored a rapidly growing market that is, BT's Home Highway customers.

I look forward to your comments on the matter.

**Mr M H Molloy**

**OUR REPLY:** We spoke to a spokesman for Time Computers, Gearald Mac Griogair, he said: "We (Time) offer a wide range of options in our computer packages and it is our policy to continually review these to ensure that we can identify changes in demand for various products and services, at their earliest stages.

"ISDN cards are mainly used by businesses and we have no plans to offer them in our PCs but Mr Molloy should be aware that through the Time Group company supanet, we offer various packages for accessing the Internet and these range across various speeds.

"The fastest supaADSL 2000 gives access at speed of 2Mbps which is nearly 40 times the speed of the fastest modem. I would be delighted to discuss it with him further."

## CD-RW mix-up

Dear **PC Plus**

I visited the Yahoo! Shopping Web pages and from one of Dabs pages ordered an HP-CD Writer Plus 9210i – internal SCSI £240.29. One of the features that made me choose this was the fact that no interface card was required.

A week later, I phoned Dabs to find out what was happening and I was told that there had been some problems with transactions between Yahoo! and Dabs. Among other things the so called Love Bug was cited as a reason. At the end of the conversation I asked for the total cost and was told that it was £175.07. There had been a £65 reduction for that particular product.

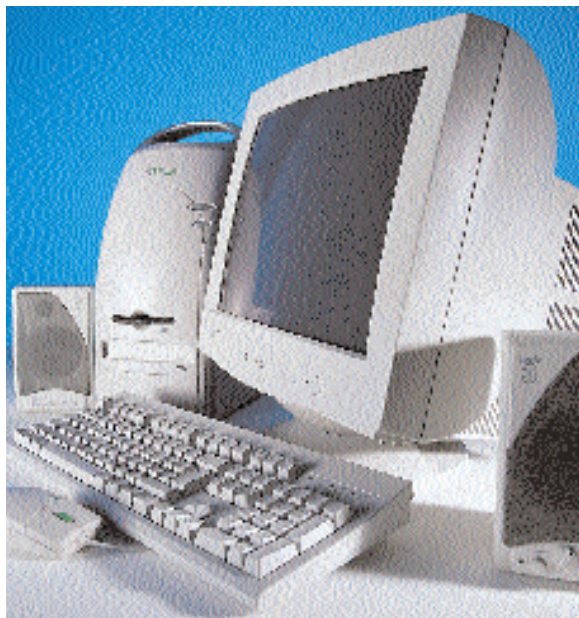
On further checking between the pages at Dabs.com and the Dabs pages at Yahoo! Shopping, I discovered that the £175.07 version required a SCSI interface card.

I rang Dabs, again, to change the order to the original item and was told that Dabs didn't sell such an item and that it was Yahoo!'s fault for attaching it to a Dabs Web page.

I enquired further and was put through to a salesman who stated that I would need a controller card to go with the SCSI CD-RW. He recommended one. He then suggested I purchase the next SCSI model up, the 9310i, which was only £1 dearer but had a faster write time.

A week later, I again rang Dabs to find out what the delay was and was told that 'credit card validation' had held the order up but that it had been sent.

At last a delivery. I received two items, an Adaptec SCSI Card 2904CD and an HP 9310i IDE CD-RW, not a SCSI type as promised. I again rang Dabs and was told that there was no such item as a 9310i SCSI, and that I had mistakenly been sold an IDE machine and a SCSI card. He offered to send the 9210i SCSI CD-RW. With the items sent, Dabs enclosed a catalogue, Issue 60 June 2000. On page 9 there is the 9210i SCSI for £158.62. I asked for the CD-RW at this new price. After some consultation he came back and said that the price in the catalogue was "a mistake" and that "the small print does actually say that prices are subject to change." I then asked to speak to a supervisor. He said that they were all busy but that one would ring me back that day. Having had no phone call from any supervisor, I rang again. I spoke to a



salesman who requested me to write an e-mail to the manager.

Just to recap. Dabs has advertised from its Web pages at Yahoo!, an item that it doesn't actually sell. It has sold me, through its sales staff, an item that doesn't actually exist and then refused to sell me an item that it does sell for a price that is advertised in its catalogue.

I have now purchased the items through Simply Computers who supplied the correct items in 36 hours. They even refunded my delivery charge because they weren't delivered on the day of ordering.

**Dave Curry**

**OUR REPLY:** We spoke to Dave Wilson, marketing manager at dabs.com. he said "In response to Mr Curry's statement, I have found that his original order was for an item that doesn't exist, a SCSI CD-RW that doesn't require an interface card. As the customer didn't know this he used the information displayed on the Yahoo! Web site, which in this instance was incorrect – due to a download error from HP's own Web site. We have informed HP of the error and they have corrected the site."

Upon contacting dabs.com a misunderstanding as to the customers' requirements led the salesperson to recommending an IDE CD-RW, because it didn't require an interface, with slightly better specification, for almost the same money. This was supplied along with the SCSI card the customer requested.

Mr Curry has been credited for the SCSI CD-RW and the unwanted SCSI card. I hope this experience hasn't soured his views of online shopping and that he will accept my apologies for the trouble he has had with this order. To compensate for the inconvenience we have sent Mr Curry a pack of 30 Kodak CD-Rs."

## Swapping CPUs

Dear **PC Plus**

I recently read the favourable review of Mesh's PC in your magazine. On the strength of this I purchased a Mesh system. When the PC arrived, the graphics

card did not work. On telephoning to get a replacement I was told I would have to send the whole system back and wait for the repair. While discussing this I realised that I had paid for an upgrade to an 850MHz Athlon processor, what had arrived was an Intel 850MHz processor. Not too much difference, maybe, but the former used a 200MHz front-end bus motherboard while the latter used a 100MHz front-end bus motherboard. Mesh had placed inferior products in the machine despite the charge for the upgrade. Could this be a method for Mesh to offload its older motherboards and slower processors on the unsuspecting public?

Mesh admitted liability but has refused to rectify this error without considerable inconvenience to myself. The Web site states that the customer comes first and that it complies with the ISO 9002 standard. My experience of its customer service has been very different. The support staff are completely inflexible, do not return calls and expect the customer to do all the running around.

The Web site promises much but in reality little is delivered. The PC systems may be good but the customer support and company practice do not match the quality.

**P Sealey**

**OUR REPLY:** A representative from Mesh states: "After receiving this e-mail we have been in contact with Mr Sealey and resolved the matter to his satisfaction."

It appears that the sound and graphics card within his computer had become dislodged from the motherboard while the computer was in transit. We obviously regret that this has happened, and have agreed to provide a full refund. **PCP**

## Write in

E-mail: [campaign@pcpmag.co.uk](mailto:campaign@pcpmag.co.uk)

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Bath BA1 2BW

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↑ We wouldn't be pleased, either, if a machine that we ordered had the wrong processor, at least Mesh offered a full refund.

## → Spotty Palm

The Palm might look stylish when you buy it, but for how long?



↑ Who would have thought that your personal data assistant could suffer from adolescent problems?

Dear **PC Plus**

In January, I bought a Palm V hand-held computing device. At first I was, naturally, very taken with it – conceptually these products are excellent organisational tools.

In addition to an extended three year warranty and the travel kit, I also purchased a Palm Official Accessory: The hard silver case supposedly designed to protect your rather 'big' investment. In total I spent almost £400.

In March I noticed that small white pock marks began to appear on the metal of the device itself. This corrosion has quickly worsened to a very noticeable degree. I was worried that, if this was the state of the device 6 months down the road, would my model – renowned for its stylish looks – appear more like an adolescent 14-year-old after a year!

I contacted Palm Support and explained the situation. At first the person I spoke to was friendly and helpful and was prepared to replace the device for a new one. Great! I thought I'd help them debug this mysterious issue by suggesting that I suspected the hard case had something to do with the corrosion.

I was then put on hold and when the support assistant returned she had transformed into Mrs Hyde and coldly informed me that Palm would be doing nothing as this was actually a known issue! I said to her, "So, you sell two products – one of which destroys the other. You know about it but continue to sell the accessory then refuse to deal with the consequences." She replied, "Whatever."

She was very happy to fax me the warranty which reads, "Accessory products, as listed in the applicable Palm Computing catalogue, are not covered under this limited warranty except for the modems for the connected organiser, the cradles, cables, memory upgrades, keyboards, styli and leather items sold under the Palm Computing brand..."

I now feel utterly betrayed. Palm seems to be resting solidly on its previous successes in this market. All I can suggest is that if you are considering buying a device like this, be very careful about the accessories and the impact they have. Consider a Jornada, HandSpring or TRG – although the latter two unfortunately still grease the palm of this dubious share-hungry company.

**OUR REPLY:** A spokesperson from Palm said that it (Palm) was currently investigating the problem and that it was happy for the customer to send the product back for further investigation. Palm also added that it had never received any queries concerning products in the series before, and it was unsure at this stage "if the case is to blame or not".



## Dave Pearman

Unmetered Internet access is here – or is it? Beneath the sea of spin, there's a breathtaking lack of people not paying for their time online

**W**hen I last talked about the way ahead for Internet access – **PC Plus**, June 2000 – I was enthusiastic about the up-and-coming broadband technologies, such as Cable and ADSL. Surely, I said, these would change the way we all use the Internet for the better, if we were prepared to pay for them. They still may, but not a lot has happened since then, though limited roll-outs have begun. High speed connections are available to the few (who happen to have the right post codes), but what the masses want, it seems, is access for free, and that means not having to pay for the calls either, thanks.

If you believe the barrage of press releases and news stories thrust upon us all this year, you probably think that you can easily get a free connection to the Internet right now. Very little could be further from the truth. While almost everyone even vaguely connected with the Internet has announced such a service, almost nobody is providing it. Many have dropped out (sometimes before even starting), some claim to be operating a service (while being completely incapable of proving it), one won't let people use it as they expected, some have terms and conditions you might not be happy about, and one or two are actually providing the service. Apparently.

So, why all the confusion? For a start, what we're really talking about here is not

'free' connection, as somebody, somewhere is going to have to pay for it – probably you. No, what the Campaign for Unmetered Telecommunications ([www.unmetered.org.uk](http://www.unmetered.org.uk)) and others have long been campaigning for is unmetered, or fixed charge access. Instead of paying for each call to your ISP at local rates, as most people have done for some time, unmetered access means you pay a fixed fee per month (or year, or other period), and all your Internet calls are included. Naturally, people want the fixed fee to be zero, but in the same way that many people would quite like not to have to pay income tax or a TV license fee, it ain't gonna happen.

**"Customers want to stay connected all night long, which wasn't what the ISPs had in mind at all"**

Second, all of these schemes to date are a fudge. While you aren't paying by the minute (or even second) for each call, your ISP is. True, they are getting a bigger discount than you could ever hope for, but even at 04p/minute (allegedly) the cost adds up. Especially when tens of thousands of customers all want to stay connected all day (and night) long, which wasn't what the ISPs had in mind at all. Oh no. Unmetered access was introduced for marketing reasons, not technical ones, so everyone was really surprised when the take-up was enormous, and everyone wanted to stay up to all hours, playing games, downloading operating systems and even running their own Web servers.

So, what we got was a combination of problems. The companies offering services couldn't keep up with the demand, so people had trouble even signing up, let alone getting connected. Once they were connected, they were kicked off after a period of time, either accidentally or deliberately. Some ISPs imposed a maximum time for each

session – typically two or three hours – and you'd also be disconnected after you were 'idle' for a while. The next trick (step forward, Breathe) was to throw out users who had the temerity to actually use the 24/7 service for 24 hours a day, seven days a week. The cheek of some people – what on Earth were you thinking?

Of course, the whole mess started because BT was forced into allowing this sort of deal by Ofcom. Never a company to fall over itself helping its new-found competitors, BT didn't, on the face of it, seem over-enthusiastic about the whole idea of unmetered access, so even when version 2 of its own SurfTime service was launched, ISPs stayed away from it in droves, preferring to do their own deals with other telcos, such as Energis (FreeServe).

Where are we now, then? In a right old mess, frankly. Visit any newsgroup or discussion forum with a UK Internet interest, and every other message is either someone complaining about a service (or lack of it), or asking where you can find a decent one, and the response from many people to the latter is "You can't". The situation has become so ridiculous that Web sites, magazines and even national newspapers have joined in the hunt for people who've actually managed to use a service that claimed 100,000 users (step up, AltaVista). What a fiasco.

Fittingly enough, the solution may be at hand, in the form of FRIACO, which isn't (oddly enough) a BT version of a fiasco, but a new charging structure which might actually make unmetered access workable. Frankly, I'll believe it when I connect to it... **PCP**

### Write in!

What do you think?  
Write and let us know at  
[PCPlus.mailbox@futurenet.co.uk](mailto:PCPlus.mailbox@futurenet.co.uk)  
or to Dave at [dave.pearman@futurenet.co.uk](mailto:dave.pearman@futurenet.co.uk)





## Martin Banks

**There no such thing as a free lunch and certainly no such thing as a free mobile phone. Be prepared to pay for what you want, says Martin**

**O**nly the other day someone rang me doing that sad, lonely job of trying to sell by cold-calling people. I usually try (though often fail) to be a bit sympathetic to them, after all it is not their fault that they are given such stunningly banal scripts to read by psychology-qualified marketing androids.

But this one, poor girl, had to start with the classic line: "this is xyz mobile phone company, and we're giving away Nokia phones with our new service..."

I stopped her there and then: there is no point in continuing any such conversation which contains such a blatant lie. The thing is not 'free': there never is a 'free' in such circumstances, so there is no point in pretending that it is. There are no free lunches, and there certainly are no free telephones.

Which is why I am glad to see that the companies that have been offering 'free' calls have all had to back down and quietly start charging. I do feel sorry for anyone who has been taken in by the cattle excrement, hoping to really get something for nothing. The real question, however, is not whether you pay – you will – but how much, and how?

The real problem, of course, has been the history of metered calls in the UK. Every call, even a local one, costs some money to provide, and here the tradition is to meter every single one of them (and, historically, to 'round up' the time used to the nearest convenient whole minute). And it is, even now, a culture shock for a Brit such as I to go to a US

hotel, connect to the Web via a global roaming service (for me, that's using the GRIC service to connect to UK ISP, Cix) and leave the beast connected all afternoon without any discerning damage to the credit card. In fact, of course, there was damage, because the hotel pays a basic connect fee to the phone company, and my room's share of it was built into the room charge.

**"I do feel sorry for anyone who has been taken in by the cattle excrement, hoping to really get something for nothing"**

That is the way it is inevitably going in this country. 'Free' is not the issue, it is getting an 'always-on' service at a known, fixed and tolerable price. This is never more so than for anyone trying to start up a business with any significant Web-based element in its operations. Only two issues are important – the cost and the bandwidth.

So small business users will, of course, be interested in both the arrival of new, high-speed services from the major telecoms suppliers, and in their pricing structures. What they also need to do is forget some of the hysteria that is going around about the prices being charged for these services.

Perhaps the most important point is that most of the hysteria seems to be coming from the 'early adopters' among the personal user community. These are the people who are so into the technology they have one of everything, coupled to every bit of freeware that has ever cluttered up a hard disk. These are also the types who tend to think that everything else to do with computers should be free as well, especially when it comes to the likes of BT and its historical gravy-train of metered phone calls.

Yes, BT has gulped deeply and extensively from that particular gravy boat, and yes, it does sometimes show amazing difficulty in grasping that its world is changing under it. But free calls it

is never likely to offer, in exactly the same way that no small business will offer goods or services for nothing.

So the time is now coming when small companies and the self-employed can seriously start considering just what level of service they want, and why. More importantly, they can then start balancing such requirements against the amount they will have to pay, for to begin with, it probably won't be much less than what they are paying already. But the brutal numbers of 'price' are not the point, anymore.

It is interesting, for example, that a survey conducted by Mori found that 40 per cent of fixed line customers were interested in using ADSL (Asynchronous Digital Subscriber Line) services, but were not prepared to pay the current charges of around £40 per month.

Sorry, but this is the Geek reaction. The last quarter, I spent over £30/month on Internet connections... and I was in the USA for a good portion of that time. For a business, if it gets a close-to-always-on services for £40/month, then I'm sorry, but that is probably as near to 'free' as you'll get in the short term. And if you want real bandwidth, you still need to be willing to triple that amount.

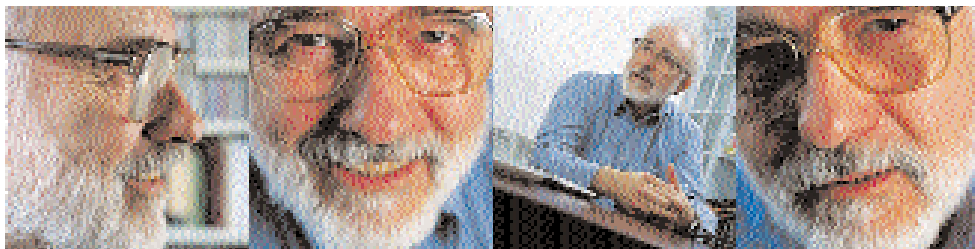
So, if you are in business, don't get trapped into the hype about 'free' telephone/Internet calls – it's a rubbish argument beloved of the Nerd with nothing else to think about.

Better to ask what you want for your business, why you want it, what you can achieve with it (especially in terms of income) and what you are really prepared to pay for it. And remember, of course, that whatever you pay now, in six months, it will be a helluva lot less. **PCP**

### Write in!

What do you think? Do you share the same views as Martin?

Write to us at [PCPlus.mailbox@futurenet.co.uk](mailto:PCPlus.mailbox@futurenet.co.uk) or [banksie@cix.compulink.co.uk](mailto:banksie@cix.compulink.co.uk)



## ChrisBidmead

The lawyers may have Napster in their sights, but it's a moving target. File swapping of all sorts is only just getting started, says Chris

**A** digital entertainment analysis outfit called Webnoize Research ([www.webnoize.com](http://www.webnoize.com)) claims that 57 per cent of the college students it surveyed recently are using Napster at least once a week. By mid-year Napster was claiming 20 million official members, a figure rising at 33 per cent per month. And Napster is only one of many new peer-to-peer file-swapping technologies now said to be reaching 'critical mass' – the point at which everyone needs to use it because everyone else is using it. A company called Telemate.Net that sells Net monitoring software for corporates to snoop on the Web habits of their staff has worked out that a single employee 'wasting an hour a day on MP3 downloads' could be setting his employers back to the tune of \$6000 a year. Multiply that out across a company with a staff of 500 and it becomes, says Telemate "a \$3 million a year problem". And, Telemate hints darkly, that's taking no account of the 'legal risks' involved in downloading files that might violate copyright.

Telemate has an axe to grind here – it's touting its own monitoring and site-blocking software. But this kind of whinging about how people use the Net strikes a sour note with me. If the 500 employees of company X are efficient enough to get their day's work done and find time for some extra downloading, the privilege of using the company's network for the purpose seems to me a just reward. If, on the other hand, they're

bored and discontented and are downloading MP3s to add a smidgin of interest to the daily grind, the problem is a lot deeper than any software fix from Telemate can reach. In fact, cutting them off from Napster could make things a lot worse. Telemate's gripe against Net usage reminds me of the Duke of Wellington's famous complaint about the then upcoming technology of the railway: he objected that it would only encourage the working classes to journey uselessly around the countryside.

It was the massive fact of the railways, rather than any individual use patterns, that began to transform society in the 1840s. We need to look at the Net in the same way.

Psychologists tell us that playful experimentation – you can call it 'ludic exploration' if you want to sound psycho-technical – it a key element in the way children get to know the world around them. It's equally important for adults getting to grips with new environments.

**"Business initially saw the World Wide Web as a cheap way of sticking coloured brochures under the metaphorical windscreen wipers of surfers"**

And this, I believe, is what it's all about. The Net and the Web are very new to most of us, and I don't think any of us know yet what it's for. Just as it took decades for the automobile to realise that it wasn't just a motorised horse – and – buggy, or the cinema several generations to discover that it was much more than photographed theatre, our understanding of the Internet is still bogged down in the historic concepts it is destined to change forever.

Business initially saw the World Wide Web as a cheap way of sticking coloured brochures under the metaphorical windscreen wipers of surfers throughout the globe. Then the metaphor switched to a shop, and then to a shopping mall.

Business-to-consumer – B2C – is proving an uncertain income earner, so the emphasis now turns to Business-2-Business, or B2B. Meanwhile we're all downloading each other's MP3s in an orgy of Consumer-to-Consumer (C2C) activity that baffles and frightens – as well it might – the traditional music industry.

And all we're doing is playing around. How is big business going to feel when we start getting serious about C2C over the Net? Napster is kids' stuff in this arena – although there's no central storing of files, the system requires the meta-information about who's got what files to be accumulated on a central server. As the current legal attack from the Recording Industry Association of America shows, this centralisation is a vulnerability. Ironically, by using laws originally intended to encourage individual freedom and the free exchange of ideas, there's a good chance that Mega Music Inc may be able to smash Napster.

But Napster's only one head of the Hydra. You don't have to do it the Napster way, and it doesn't have to be just music, of course. Gnutella, among other second generation Napster offspring, extends the idea into general filesharing and more complete decentralisation. But the one to watch, IMHO, is Ian Clarke's FreeNet (<http://freenet.sourceforge.net>). The UK music industry magazine, *Music Week*, describes it as "a new time-bomb the industry must defuse". FreeNet author Ian Clarke sees it as nothing less than "rewiring the Internet" into a nexus where every user is guaranteed the freedom to exchange anything and everything with anybody, in conditions of anonymity that put such actions beyond the reach of the law forever. I wonder what Telemate intends doing about that... **PCP**

### Write in!

What do you think?  
Write and let us know  
at [PCPlus.mailbox@futurenet.co.uk](mailto:PCPlus.mailbox@futurenet.co.uk) or to  
Chris at [bidmead@cix.co.uk](mailto:bidmead@cix.co.uk)

# WINDOWS POWER TECHNIQUES



Windows is a versatile beast but sometimes you need to squeeze just that little bit extra from it. Our collection of top techniques for Windows 98 and Windows NT4 is guaranteed to help

## 98 Install Win98 with Win95

During Win98 install, the setup program accepts your Win95 CD-ROM as proof of Microsoft OS ownership.

## 98 Retrieve UNINSTALL.EXE

Boot from your Win98 Emergency Startup Disk and load files that support your CD-ROM drive. Insert the Win98 CD and type this line at A: prompt to extract UNINSTALL.EXE to your Emergency Startup Disk: extract {your CD drive letter}:\win98\win98\_42.cab uninstall.exe a:

## NT Sorting your installation

Get plenty of free space. If you're upgrading from NT 3.51 to NT 4 then we recommend you have at least 150MB free on your hard drive. Conveniently NT 4.0 Setup preserves user accounts and settings, and will automatically migrate your existing Program Manager groups to Start menu folders.

## 98 Re-order cascading menu items

Hold down the mouse button and drag a highlighted file or folder up or down the list. Open the Registry Editor and drill down to the following key:

```
HKEY_CURRENT_USER\Software\
Microsoft\Windows\CurrentVersion\
Explorer\MenuOrder\Start Menu\&
Programs\Menu.
```

Highlight the Order entry in the Contents pane, then delete it. The list will be in alphabetical order the next time Windows opens.

## NT Power Toys

Some Power Toys are now supporting Windows NT 4.0. These include Find X 1.2, Send To X 1.4, Shortcut Target Menu 1.2, Tweak UI 1.1 and Explore From Here as well as Command Prompt Here 1.1. Download them from Microsoft: [www.microsoft.com/windows/software/powertoy.htm](http://www.microsoft.com/windows/software/powertoy.htm).

## 98 Unfold submenus

If you hover over the item and let the submenu fully unfold, wait and then click on it and you're able to drag the submenu item to a new position.

## NT Out of space

You're upgrading to NT 4.0 and you run out of disk space. What should you do apart from buy yourself a brand-new drive? Well, you'll be given three options.

The first option is to reboot and free up some more space. This is useful if your system is configured for a dual boot to Windows 95. You can then delete Windows NT's virtual memory paging file (PAGEFILE.SYS) to free up space. The second option is to delete any existing Windows NT directory trees. This will save you about 80MB. The

third option is to reformat your hard disk.

## 98 Turn off extensions

Open the HKEY\_CLASSES\_ROOT \.ext key, where .ext is the extension you don't want to see; and note the file type listed on the (Default) line. Drill down, open the subkey with that name and create the following Edit/New/String Value entry: In the Name column, enter NeverShowExt and in the Data column, enter "".

## NT Open license

Business users take note. Microsoft's Open Licensing deal can save you money on purchasing NT for ten or more systems. With their two-year, flat rate maintenance contract you're automatically entitled to software upgrades during the period. Search for 'Open License' on the Microsoft Web site for more details.

## 98 Installing without a CD-ROM

Copy the \WIN98 directory from the CD on another computer to your PC's hard disk. If you're on a network, share a CD-ROM drive on another computer; copy the contents of the CD's \WIN98 directory to a Win98 folder on your hard disk. If you have another PC with a CD-ROM drive, establish a Win95 direct-cable connection to the other machine and copy the

\WIN98 directory to a local Win98 folder.

## 98 Buttons up

Bring back the Map/Disconnect Network Drive toolbar buttons by clicking Options/View and choosing Show Map Network Drive button in toolbar.

## 98 Change folder views

Click on the Views button and click on the down arrow next to the button to choose a view.

## NT Windows shortcuts

On a Microsoft Natural keyboard if you press the Windows button WIN + R it brings up the Run dialog box. WIN + M minimises all open windows while WIN + E brings up Windows NT Explorer.

## NT NDS support

The NT Workstation contains client software for linking to Novell Netware/IntranetWare servers. However, if you'd like support for Novell Directory Services (NDS) you need to use Novell's 32-bit IntranetWare client. You can download it from the Novell Web site [www.novell.com](http://www.novell.com)

## 98 Recognise SCSI devices

Right-click on My Computer and choose Properties. Click on the





Device Manager tab, highlight the Computer entry and click on the Refresh button.

## 98 Unwanted folder warnings

Simply uncheck the As Web Page in the folder's View menu to see the Windows folder without any warnings.

## NT Nuisance Taskbar

If you think the Taskbar and the Start Menu are a nuisance then use the Auto Hide feature to keep them out of harm's way. Right-click on the blank area of the Taskbar then choose Properties from the Context menu. Check the AutoHide box.

## NT Task Manager options

You've got two ways of launching the NT Task Manager. Either press [Ctrl] + [Alt] + Delete or right-click on the NT4 taskbar and choose Task Manager from the pop-up menu.

## 98 Create a new default folder

Use the Like Current Folder button. Customise a folder's view then select View/Folder Options and the View tab. Click on Like Current Folder to create the new default.

## NT Dual boot

While you can't upgrade directly from Win95 to Windows NT you can create a dual boot system so that

you've got both operating systems on the same computer.

Make sure your hard drive has an uncompressed partition with at least 150Mb free, and that it's formatted using FAT16 not FAT32. Don't install NT in C:\Windows, if you do then you'll corrupt the Windows 95 Registry.

## NT NT Server 4

NT can't legally be simultaneously used for more than 10 inbound connections. If you've been using NT 3.51 as a Web server and want to upgrade to NT 4 then Microsoft will let you upgrade to NT Server 4 for half price. See [www.microsoft.com/windows/common/aa268.htm](http://www.microsoft.com/windows/common/aa268.htm) for details.

## 98 Make desktop shortcuts

From any folder window, right-click on an icon and choose Send To/Desktop as Shortcut.

## 98 Position shortcuts

Drag the file over the Start button and don't drop it; the Start menu opens and you can position the new shortcut where you please.

## 98 Clean up your bookmarks

Create a standard shortcut to your Favorites menu (C:\WINDOWS\FAVORITES) and place it in your Send To folder (C:\WINDOWS\SENDTO). Then

right-click on any shortcut on your Desktop and choose Send To/Favorites to move the shortcut to your Favorites menu.

## 98 Reveal all files

Click on the View tab; in the Advanced Settings area, find Hidden Files and check the box beside Show All Files.

## 98 Turning Web View off

Open a folder window and select View/Folder Options. Select the Custom button then click Settings. Under View Web Content, choose Only for folders where I select as Web Page.

## 98 Make toolbars smaller

Make toolbars smaller by clicking on the Internet control panel's Advanced tab; scroll to Toolbar and check Small Icons.

## NT Twin brother

While having a different name, the Windows NT Explorer has exactly the same interface as the Win95 Explorer, so any tips that relate to customising Explorer elsewhere in this issue for will apply to both.

## 98 Saving space on your Windows

Drag the Address bar on to the unused space to the right of the menu bar.

## NT Setup Manager

Look in the Support\Deptools folder on the NT 4.0 distribution CD. You'll find the Setup Manager. It's a handy program that helps you customise the NT Setup for your business. See the Microsoft NT 4.0 Deployment Guide for its documentation.

## NT Broken mailbox

If you start to get trouble with the NT's resident e-mail software, Windows Messaging, then you may need to check for broken links using the Inbox Repair Tool. Accessed from the Start menu's Programs/Accessories/System Tools folder, the Inbox Repair Tool will do all the work for you.

## 98 Spruce up your desktop

Press [F5] to refresh the desktop.

## 98 Activate power-user folder settings

Open My Computer and select View/Folder Options/View. Check the options Display the full path in title bar, Show Map Network Drive button in toolbar and Allow all uppercase names.

## 98 Saving more space on your Windows

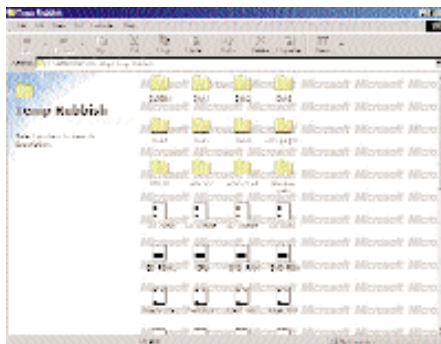
Turn off the text labels on toolbars on the View/Toolbars menu by removing the check mark next to Text Labels. Turn off the Links bar on the same submenu.





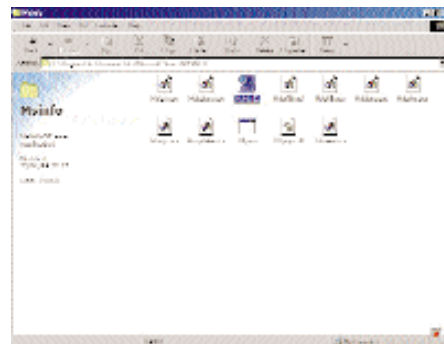
## 98 View editing pixel-by-pixel

Use the Magnifier feature to view graphics editing. Use Control Panel's Add/Remove Programs to make sure all the Accessibility options are installed, then run Magnifier from Start/Programs/Accessories/Accessibility.



## 98 Redecorate folders

Use a picture for any folder's background. Open a folder and choose View/Customise This Folder. Click on Choose a background picture then on Next. Select a background picture from the list then click on Open. When you're done, click on Next, then Finish.



## 98 Save configurations

Use MSINFO (C:\PROGRAM FILES\COMMON FILES\MICROSOFT SHARED\MSINFO\MSINFO32.EXE) to save a system configuration 'snapshot' to a floppy.

## 98 Use the drive analyser Microsoft's drive analyser can help determine if you should convert a FAT16 drive to FAT 32

### NT Custom Setup

If you're installing NT 4 on a large number of identical machines then it's a good idea to create a Custom Setup. Look in Support\Deptools on the NT CD for the tools you need to do this. Unfortunately you'll have to go on the Web to get the documentation.

Look for Planning, Migration & Deployment links on Microsoft's NT Workstation ([www.microsoft.com/ntworkstation](http://www.microsoft.com/ntworkstation)) and NT Server ([www.microsoft.com/ntserver](http://www.microsoft.com/ntserver)) pages.

### 98 Expand folders automatically

In a dual-pane Explorer view, hold a file you're dragging over a collapsed folder list. Do this until you drill down to the folder you want to drop the file in.

### NT Drive letter

From the Windows NT command prompt don't attempt to use a back slash to change drives. CMD.EXE isn't configured for this command. Instead, to change drives, type the drive letter followed by a colon.

### 98 Display file attributes

Select View/Folder Options and click on the View tab. In the Advanced Settings box, select Show file attributes in detail view then click on OK.

### NT Write buffer off

If your NT system comes with a SCSI drive, don't be alarmed to discover that its onboard write buffering is turned off by default. If

you've got your memory cache turned on then you won't notice a drop in performance. If however you insist on turning on the write buffering then you should be aware that you'll have less data security because write completion will be signalled before the data is committed to the disk surface.

### 98 Schedule automatic program launching

Double-click on Task Scheduler's icon in the system tray. If the icon isn't there, select Start/Programs/Accessories/System Tools/Scheduled Tasks.

### 98 Make Quick Launch float

Click on the bar's left edge, drag it to a blank area on the desktop and let go.

### NT Peer Web Server

If you want to use NT to manage your Intranet or for Web development then you can use the Peer Web Server feature. It is essentially the same as NT Server 4's Internet Information Server, but has a legal limit of 10 inbound connections.

### NT Open NT

If security is not an issue then you can log on to Windows NT when you boot-up. Download the Tweak UI PowerToy from the Microsoft Web site then go to the Network tab and specify the user ID and Password.

### NT Mult1 Modem

If you connect to more than one ISP then you may need to configure

your modem differently for each one. Double-click on the Modems icon in the Control Panel and select your modem. Click the Properties button then hit the Connection tab and the Advanced button. An Advanced Connection Settings dialog appears. The Extra Settings field lets you type in a command line that is sent to your modem before it dials. Check with your manufacturer for any command strings you need.

### NT Quick click

Why not make the middle button of your 3-buttoned mouse a double-click? You'll find instructions at the Web site [www.windows-nt.com/tipsandinfo](http://www.windows-nt.com/tipsandinfo).

### 98 Add shortcuts to the Channel Bar

Drag an icon or a shortcut to a location between two channels on the bar.

### 98 Reveal the desktop

The Quick Launch toolbar's Show Desktop button shows your Desktop in a flash.

### 98 Get to your desktop again

Hold down the WinKey and press D.

### NT Easter Eggs

Check out these NT Easter Eggs. Go to the screensaver selection and choose 3D Test (OpenGL). In the Settings tab type 'I love NT'. Preview the screen saver and you should see the word 'good?' floating about. Back to the Settings tab and type 'not evil'. Hit Preview and you'll see a

list of all the names of the NT Programmers. Also if you type Volcano you'll see the names of various volcanoes in 3D.

### NT Enhanced Tasks

Windows NT 4 features an enhanced Task Manager. It shows you not only which applications are currently running, but also which processes. To run it, right-click on a blank area of the Taskbar, then choose Task Manager from the Context menu.

### 98 Utilise ClipTray

Right-click on the ClipTray icon and select an item from the menu. It goes right on to the Clipboard, ready for pasting.

### 98 Create a custom database

Use System File Checker. Click on Settings on the first screen, then select the Advanced tab; click on Create and name the file.

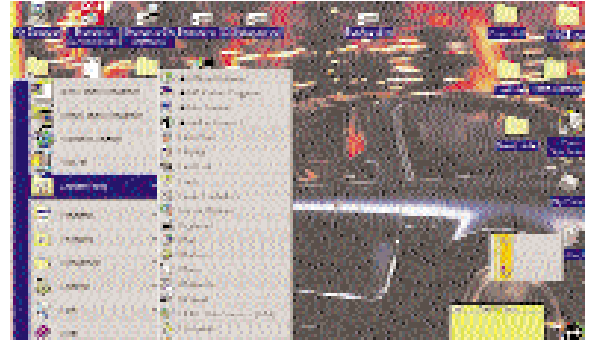
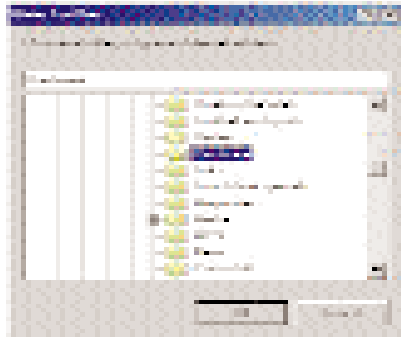
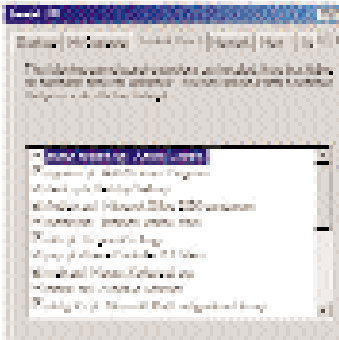
### NT E-mail upgrade

To upgrade your Windows Messaging e-mail to Exchange Server 4.0 install Exchange Server 4.0 Service Pack 2 or higher. During the setup you'll be asked if you'd like to upgrade the workgroup postoffice. Accept the option and continue with the installation. All user accounts will be upgraded.

### NT Flashing lights

When you log on through Dial-Up Networking modem lights will blink in an icon next to the clock on the task bar. Right-clicking on the lights





## 98 Hide Control Panel applets

Use Tweak UI (on the Win98 CD in the \TOOLS\RESKIT\POWERTOY folder). Click on Tweak UI's Control Panel tab and clear the check boxes for applets you wish to hide.

## 98 Add Web page to taskbar

Right-click on any blank area of the taskbar. Select Toolbars/New Toolbar from the pop-up menu. In the New Toolbar dialog box, type a URL.

## 98 Create a cascading folder

Right-click on Start and select Open, right-click on the folder background and choose New/Folder and enter one of the following:  
Control Panel.[21EC2020-3AEA-1069-A2DD-08002B30309D]  
Printers.[2227A280-3AEA-1069-A2DE-08002B30309D]  
Dial-Up Net.[992CFFA0-F557-101A-88EC-00DD010CCC48]

displays a Context menu with options to open the Full Dial-Up Monitor interface.

## NT Single protocol tests

If you have trouble with your Network protocols then the best way to find out which protocol is problematic is by testing them one at a time. In Control Panel/Network select the Bindings tab. You can now disable all the bindings except the one you want to test.

## NT Add/Remove Programs

Windows NT has an Add/Remove Programs icon in the Control Panel which functions just like Win95. It's used to add components to your system, such as the Windows Messaging e-mail client and the Internet Explorer Web browser.

## 98 Use the Driver Update Wizard

Right-click on My Computer, select Properties and the Device Manager tab. Select the device you want to check, click on Properties and the Driver tab, then click on Update Driver.

## 98 Choose file to run

When you create a task with Task Scheduler, you're prompted to select a program to run. But you can also use any file that has an associated application.

## 98 Use Task Scheduler as reminder

Create a Reminders folder where you can put small documents, each containing a reminder. Then schedule each document to open at an appropriate time.

## 98 Keep a bootable Win98

Format a floppy disk with the option to copy system files. Copy C:\WINDOWS\COMMAND\SCANREG.EXE and C:\WINDOWS\HIMEM.SYS to the disk; add the line DEVICE=A:\HIMEM.SYS to the CONFIG.SYS file on the disk.

## 98 Boot with ease

Select Start/Programs /Tools/Maintenance Wizard and choose Custom. In the Start Windows more quickly box, disable unnecessary features.

## NT Open GL support

The faster video drivers and Open GL support in Windows NT are best demonstrated by looking at the new screen savers. The 3D Maze (Open GL) is a good example. Right-click on the desktop and choose Properties then Screensaver.

## NT Dinosaurs and bananas

You can take the formal edge off NT with the custom mouse pointers. You'll find various designs ranging from bananas to dinosaurs. Open Control Panel and select Pointers then choose your favourite scheme.

## NT Default Explorer

If you prefer the two-pane Explorer view of folders to the standard open folder view then it's possible to set it up as your default. Click Start, then Run and type REGEDT32.EXE to open up the Registry editor. Select HKEY\_CLASSES\_ROOT\FOLDER\shell\

open\ddexec. Change the first 'No Name' entry from [ViewFolder ("%I", %I, %S)] to [ExploreFolder ("%I", %I, %S)]. Now double-click on any folder to open the Explorer view by default. Always backup your Registry files before you change them.

## NT NT Plus!

On the NT distribution CD you'll find numerous utilities originally found in the Windows 95 Plus Pack. For example, double-click the Display icon in the Control Panel and click the Plus! tab. You can select larger icons and change the icons for My Computer, Network Neighbourhood and the Recycle bin.

## 98 Change Checker's options

Run System File Checker, click on Settings and make sure the two check boxes are selected to check for both changed and deleted files.

## 98 Polish your Start menu

Right-click on any Start menu item, and choose Open, Create Shortcut, Delete or Properties from the Context menu.

## 98 Use System Monitor

(C:\WINDOWS\SYSTEMON.EXE) lets you track an array of performance measures for your system and network.

## 98 Control your mouse

Use the MouseKeys option. Launch Control Panel's Accessibility Options applet and select the Mouse tab; check the Use MouseKeys box.

## 98 Access desktop shortcuts

Right-click on the taskbar, select Toolbars and check Desktop. You can now click on Desktop icons on the taskbar.

## 98 Control the Control Panel

Right-click on the Desktop and create a new folder; right-drag the applets (from Explorer) to create shortcuts.

## NT Change display on-the-fly

NT offers a range of display functions that take effect without re-booting. Double click the Display option in the Control Panel and choose the Settings tab. Make your changes to the number of colours, or the size of the desktop and they'll be implemented immediately.

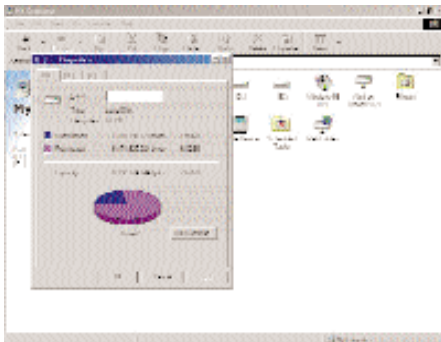
## NT A better view

NT Explorer's default settings aren't very useful for experienced users. To get a more helpful view we suggest choosing Options from the View menu and selecting Show all files. Also check Display full path in the title bar, Display compressed files and folders with alternate colour and Include description bar for right and left panes for the best effect.

## 98 Browse local disks

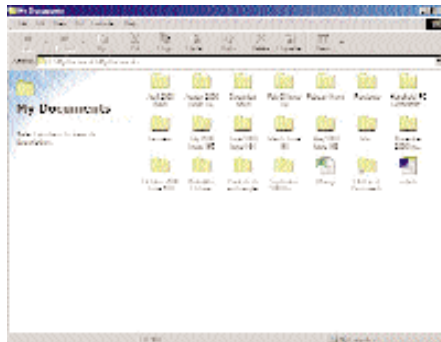
Use the Explorer Bar. Open My Computer and select View/Explorer Bar/Favorites. You can use the left pane to jump to folders and open applications and documents.





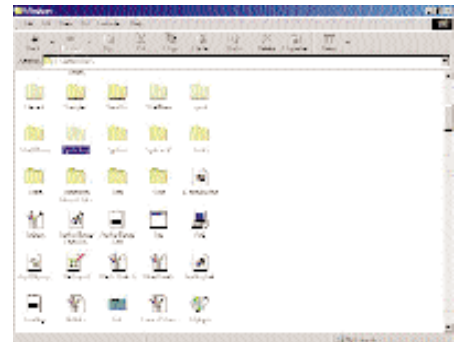
## 98 Resource Kit Sampler for free

To install it, run **SETUP.EXE** in the **\TOOLS\RESKIT** folder on the CD.



## 98 My Documents shortcut rename

In Explorer, right-click on the folder, select **Rename** and type a new name. To rename the shortcut, right-click on it, choose **Rename** and type the new name.



## 98 Back up the Registry

The backups are in CAB files in **C:\WINDOWS\SYSBACKUP**, named **RB000.CAB**, **RB001.CAB** and so on. Turn on **Show All Files** to see the files.

## 98 Scan like a pro. Before running ScanDisk, click on Advanced.

In the **Check Files For** section, select **Invalid dates and times** and **Duplicate Names**.

## 98 Search for files

Use Explorer's **File Finder** (**Tools/Find/Files or Folders**).

## 98 Backup safely

If you have about 50MB of hard disk space to spare, choose the installation option to back up your previous operating system.

## NT Customise Start

Save time opening various folders by adding your most commonly used folders or programs to NT's Start menu. Right-click on **Start** and select **Explorer**. Explorer will open with the **Programs** folder in the right-hand pane.

To add a new folder to the Start menu double-click the **Programs** folder then select **File/New Folder**. To add shortcuts to your programs open the new folder and select **File/New Shortcut**.

## 98 Use current compatible drivers

The **System Information** tool includes two utilities to check the integrity and version numbers of Windows 98 system files.

## NT Wipe the desktop

If you're running NT on a computer with low memory, then it might be helpful to get rid of the NT desktop altogether. It's possible to do this and still have NT running. In **Task Manager** select the **Processes** tab and select **explorer.exe** from the list. Press the **End Process** button. You'll get a warning message. Ignore it and click the **Yes** button. The only thing left running on your desktop

will be the **Task Manager**, all your icons will be shut down. Don't worry, you can still start programs from the **Applications** tab's **New Task** button. To reverse the procedure click **New Task** and type **explorer.exe**

## NT Gone forever

If you want to remove the desktop permanently, then you can start with just the **Task Manager** or the **Command prompt** by editing the Registry. Click **Start** then **Run** and choose **REGEDIT32.EXE**. Locate **HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\WinLogon**. Double click the **Shell** value in the right-hand pane. Its default is **Explorer.exe**. Change it to **CMD.EXE** to start with the **Command prompt**, or **TASKMGR.EXE** to start with the **Task Manager**. Close the Registry editor and reboot. Remember, to get your desktop back run **EXPLORER.EXE**

## 98 Cancel Win98 installation

Simply press **[F3]**.

## 98 Component status check

The **System Information** utility (**Start/Programs/Accessories/System Tools/System Information**) searches for conflicts and finds out the status of drivers.

## 98 DOS boot change

Hold down the **[Ctrl]** key while your PC is booting. This takes you directly to the **Boot Menu**, including **Safe Mode** and 'Boot to command prompt only'.

## 98 Customise setup

The Win98 Setup program supports a number of command-line options: **Setup /ID:** skips the check for minimum disk space. **Setup /IM:** skips the check for low conventional memory. **Setup /NR:** skips the integrity check on the current Windows Registry. **Setup /S {Filename}:** specifies an automatic configuration script. The Win98 Resource Kit Book on the Win98 CD lists all Setup options in the **Choosing a Method to Run Setup** section.

## NT PIFed off

If you've just upgraded to NT 4 from NT 3.51 then you might wonder where the **PIF Editor** has gone. NT 4 uses property dialog boxes instead. Right-click on a program and choose **Properties**. You'll find you can do everything that the old **PIF** editor did by selecting different items in the **Property** dialog.

## NT Crowded house

If you find a folder's window too crowded with icons to view properly then change the view to a list using the **View** menu. It will make things much clearer.

## 98 Add a QuickRes icon to System Tray

To enable **QuickRes**, launch the **Display** applet, on the **Settings** tab, click on **Advanced** and choose **Show Settings icon** on taskbar.

## 98 Copy or move Start menu items

Drag and drop them to the **Desktop** or to the folder of your choice.

## NT Lost Setup disks

When using a recovery disk you also need your three original NT Setup disks. If you've lost them don't worry, you can re-create them using NT Setup.

From the **Start** menu select **Run** and choose the file **WINNT32.EXE** from the **[i386]** folder using the **Browse** option. Make sure you add **/O** after the filename. This instructs NT to create the boot diskettes only.

## 98 Utilise Thumbnail view

Right-click on the closed folder that contains the graphics files and select **Properties**. Check the box next to **Enable Thumbnail View**, open the folder and select **Thumbnails** from its **View** menu.

## 98 Check your hardware

For a list of minimum hardware requirements, go to **www.microsoft.com/windows98/basic/systemreqs.asp**.

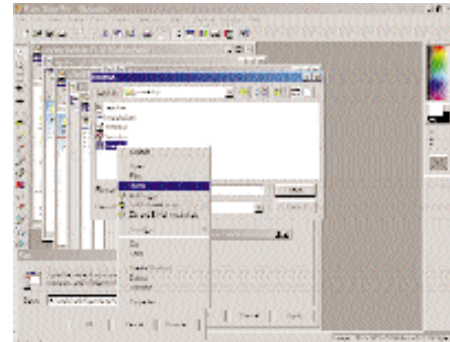
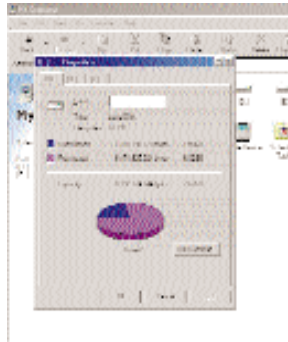
## NT Synchronise times

To synchronise the time on your NT machine with the **Domain Controller's** type **net time \\**nts** /set** at the command line. **Nts** is the name of the NT machine with which you want to synchronise.

## NT Recovery Disk

It's always a good idea to have an up-to-date recovery disk on hand. Use **Windows NT's** **Repair Disk** utility to create one.

From the **Start** menu choose **Run** and type **RDISK.EXE**. When



## 98 Faster booting

Run Win98's System Information and select Tools/System Configuration Utility. Click on the Startup tab and uncheck programs you want to turn off.

## 98 Check multiple disk properties

Open My Computer and select the icons you're interested in, then right-click on one and select Properties.

## 98 Tweak UI installation

Insert the Win98 CD and choose Browse This CD. Go to the \TOOLS\RESKIT\POWERTOY folder. Right-click on the TWEAKUI.INF file and choose Install from the pop-up menu. A Help screen opens; click on the X in the corner to finish installation then launch Tweak UI from the Control Panel. TweakUI is a handy tool which enables you to customise many aspects of Windows' performance.

the program starts click on Create Repair Disk. It's always a good idea to make a new recovery disk after you've installed new software.

## NT Legal eagle

If you want a user to receive legal warnings when he/she logs on then make the following Registry adjustments using REGEDT32.EXE. Go to the HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon key. Add two keys of type REG\_SZ called LegalNoticeCaption and LegalNoticeText to act as the dialog title and body text of the warnings.

## NT Where are you?

If you're having trouble connecting to other computers on your TCP/IP network then make use of the various IP troubleshooting tools. Run IPCONFIG.EXE from the command prompt to get local IP addresses, then use PING.EXE to check immediate connectivity. There's also NET VIEW which checks higher-level connections.

## 98 Control My Documents

Right-click on the Desktop's My Documents folder, choose Properties, click on Browse and locate a desired folder. Highlight the folder and click on OK, then delete the My Documents folder from your C: drive.

## 98 Create a FAT32 disk partition

Use a pre-installation Win98 emergency boot disk. Here's how to

make one: Under Win95, use Explorer to open the \TOOLS\MTSUTIL\FAT32EBD folder on the Win98 CD. Insert a 1.44Mb diskette in the A: drive and double-click on the FAT32EBD program. From Win3x, exit to a DOS command prompt and switch to your CD-ROM drive; type CD\TOOLS\OLDWIN95\FAT32EBD. Insert a 1.44MB disk in the A: drive, type FAT32EBD at the DOS command prompt and press [Enter]. Insert the Windows 98 Emergency Boot Disk in the floppy drive, boot up the PC and use the FDisk and Format utilities to prepare your hard disk.

## 98 Check Win98 Registry errors

Launch Registry Checker from System Information's Tools menu.

## NT NT remote

Using NT 4 it's possible to log on to the network as a remote user and still retrieve information as if you were logged onto the system as a local user. To exploit this feature choose Start/Programs/Administrative Tools and select NT Diagnostics. Use the File/Select Computer menu to browse around.

## NT Help me

Help is available in NT for most dialog boxes and property sheets. Press the F1 key when you're stuck.

## NT Network Monitor

If you're running NT Server 4 then make sure you install the Network Monitor. This handy utility will give you readouts on your network performance. To install it go to the

Network icon in Control Panel and select the Services tab. Click on Add and choose Network Monitor from the list.

## 98 Sort print problems

Try EPTS.EXE. It's on the Win98 CD in the \Tools\Misc\Epts folder.

## 98 Use Link Check Wizard

This scans all Link files, shows you a list of broken shortcuts and lets you delete them. It's on the Win98 CD; double-click on the CHKLNKS.EXE file in the \TOOLS\RESKIT\DESKTOP folder.

## 98 Support your IntelliMouse

Install the IntelliPoint software that came with the mouse. Download the latest version at [www.microsoft.com/products/hardware/mouse/driver/default.htm](http://www.microsoft.com/products/hardware/mouse/driver/default.htm). Choose the Retail or OEM version of the download then insert the IntelliPoint driver diskette (1.1 or later) and double-click on the file you downloaded.

## 98 Save more Registry backups

Open \WINDOWS\SCANREG.INI with Notepad and change the MaxBackupCopies= value from 5 to a higher number.

## 98 Extract a system file

Launch the System File Checker from System Information's Tools menu. Click on the 'Extract one file from installation disk' radio button, type the full file name and click on Start. Type x:\WIN98 (where x is your CD-ROM drive) in the Restore From

box, enter the destination in the Save File In box and click on OK.

## 98 Place Task Scheduler on hold

Right-click on the Task Scheduler icon in the system tray and select Pause Task Scheduler.

## NT LAN Manager commands

NT 4 inherited the command line functions of Microsoft's LAN Manager series. Type NET HELP at the command prompt to see what's available.

## NT CMD update

Version 4 of NT has some great improvements to the command prompt. Type CMD /? | More for a full list of all the commands available from the Command prompt.

## 98 Open Root Folder quickly

Select Start/Run, type a backslash (\) and press Enter.

## 98 Change QuickLaunch icons

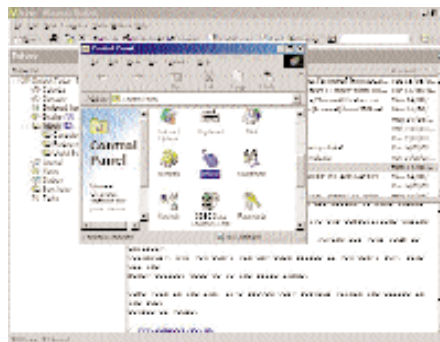
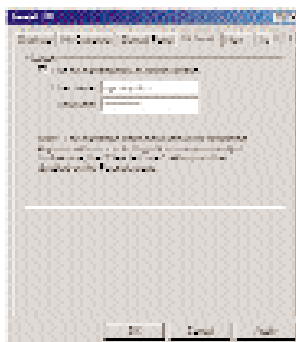
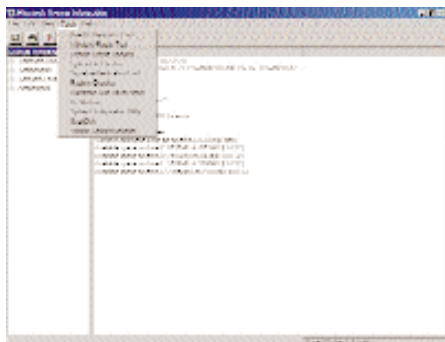
Go to the C:\WINDOWS\APPLICATION DATA\MICROSOFT\INTERNET EXPLORER\QUICK LAUNCH directory and open the desired SCF file with Notepad. Find the IconFile= line and point it to the path and filename of the icon you want. Add new items to the Quick Launch toolbar by dragging and dropping a file or folder icon from an Explorer window on to the toolbar.

## 98 Delete unwanted Start menu items

Simply drag them to the Recycle Bin.







## 98 Fix problems

Select Start/Programs/Accessories/System Tool System Information to find everything you need to know about your installed hardware and software. The Tools menu has links to great troubleshooting aids.

## 98 Log on automatically

Select the Network tab in TweakUI and enter your user name and password.

## 98 Get rid of underlines

Customise your view so that you see the underline only when you move your cursor over an icon. Select Start/Settings/Folder Options. Click on the General tab, select Custom and click on the Settings button. Choose 'Single-click to open an item [point to select]' and select 'Underline icon titles only when I point at them'.

## 98 Compare files

Use the WinDiff utility (WINDIFF.EXE in \TOOLS\RESKIT\FILE on the Win98 CD).

## 98 Restore 'Show Desktop'

Go to C:\WINDOWS\Application Data\Microsoft\Internet Explorer\Quick Launch. Create a new text file with the following contents: [Shell] Command=iconFile=explorer.exe,3 [Taskbar] Command=ToggleDesktop Save the file as SHOWDESKTOP.SCF. This restores the shortcut.

## NT Admin Wizard

Take advantage of NT's Administrative Wizards. These helpful programs guide you step-by-step through most common administrative tasks such as group management, print drivers and modem installations. You'll find them in Start/Programs/Administrative Tools.

## 98 Display a slide show

Right-click on the Desktop and select Properties. Click on the Screen Saver tab and select the Channel Screen Saver. Click on the Settings button. The Channels box lists your channels; select the ones you want in the screen saver, and click OK.

## 98 Drag category bars

Check out Explorer's Details view (View/Details).

## 98 Speed up starting up

Right-click on the taskbar and select Toolbars/New Toolbar. In the dialog box, open the C:\WINDOWS\START MENU folder, choose the item you want to access and click on OK. Now you have single-click access right from the taskbar.

## 98 Backup the Registry wisely

To specify files to back up, open SCANREG.INI in Notepad and add the line Files= followed by the folder code (30 for the root directory, 10 for the Windows directory or 11 for the System directory) and the filename, separated by a comma.

## 98 Fast file reading

The Text File Viewer (in the Win98 Resource Kit sampler) is like a special, dual-pane Explorer window, but it lets you select a file extension, then flip through only those files on your system. By selecting the files in the left pane, you can read the contents on the right.

## 98 Troubleshooting tip

The System Configuration Utility has a cracker called Advanced Troubleshooting Settings. Launch MSCONFIG on the Run command line and click on the Advanced button under the General tab.

## 98 Uncover problems

In the System Information Utility, click through each item and look for the message, This device has a problem.

## NT Legacy DOS

Legacy DOS programs running under NT can cause problems. The best way to deal with 16-bit applications is to let them run in their own memory space. This may be a bit slower, but it's more secure. From the Properties dialog for the program click 'Run Application in own memory space'.

## 98 Clear defaults

If you double-click on an unknown file type, the Open With dialog box lets you choose the program you want to use. To clear the default checkmark permanently, open the following key: HKEY\_CLASSES\_ROOT\Unknown\shell\OpenAs\command. Double-click on the (Default) entry in the Contents pane, then add a space and a %2 immediately after the %1 at the end of the Value data line. Exit the Registry.

## 98 Make a longer password

Open this Registry key: HKEY\_LOCAL\_MACHINE\Software\Microsoft\Windows\CurrentVersion\Policies\Network. Open the Edit menu and select New/DWORD Value. In the Name column enter MinPwdLen and in the Data column enter xx. Replace xx with the new minimum length. To avoid accidents, click on the Decimal button before entering the Value data.

## 98 Utilise Registry Tracker

Using Norton's File Compare utility, select its Show Differences Only option for a fast before-and-after comparison of any exported files.

## NT F5 to save

NT doesn't autosave the desktop configuration like Win95 does, so remember to hit F5 before you exit if you want to keep your settings.

## 98 Use window as an FTP client

Type an FTP address in the Address box of any Explorer view then go to the site.

## NT NT on the road

NT isn't the ideal operating system to use on a portable computer, but if you want to use NT on the road then take advantage of the Hardware Profile feature. Select Control Panel/System and select Hardware Profiles then Properties. Here you can disable all Network features, which you won't need on the road.

## 98 Use AutoComplete on local folders

Start typing a pathname, and AutoComplete will guess. Once it guesses right, stop typing and press Enter.

## 98 Track with ease

Just tell the utility Filewise what files or folders to track, and it documents changes to selected file characteristics.

## NT Get the Theme?

Use your Win95 themes in Windows NT by locating THEMES.CPL and THEMES.EXE in Windows 95's C:\WINDOWS\SYSTEM directory, and copying them to C:\WINNT\SYSTEM32. Reboot your workstation and you'll notice a Desktop Themes icon in the Control Panel.

## 98 See closed-folder icons

Make a backup copy of REGEDIT.EXE as REGEDIT2.EXE and open it in an icon-editing utility. Edit the open-folder icon to change its colour to red. Rename the original file as REGEDIT.BAK and the customised version as REGEDIT.EXE.

**131** Find out the best way to redirect Web pages automatically

**133** How to get your network performance up to speed

**134** Correct a negative image with our free utility

**136** Synchronise your contacts in Outlook automatically

# PCPlus HELPDESK

→ We solve your PC problems

**W**elcome to HelpDesk. I've had some fascinating – and tricky! – questions over the past month, including emails on fixing CD drives, managing Excel spreadsheets and boosting network performance. And if you caught last month's piece on my home-made adaptor for scanning transparencies and film negatives, I've now got an even better solution that produces excellent results, built with true *Blue Peter*-style resourcefulness.

Finally, a reminder to keep sending in your questions. I don't have the time to answer each one individually but I do read each one very carefully. The ones I print will be the ones with most appeal to a wide range of your fellow readers. Please contact me at the address below.



**Ian Sharpe/HelpDesk Editor**  
ian.sharpe@futurenet.co.uk

## Write in!

E-mail your questions to:  
ian.sharpe@futurenet.co.uk

Or write to: HelpDesk, PC Plus  
30 Monmouth Street  
Bath BA1 2BW

Or fax: 01225 732295

## Look out for these icons for useful extra information



Visit our forums at [www.pcplus.co.uk](http://www.pcplus.co.uk) and swap tips with other PC Plus readers



See our **SuperDiscs** for useful software and extra tutorial files



When you see this, visit the Web site for more information, advice or support

## Help us help you!

We get thousands of e-mails a month so do please send your mails to the right department. If you are having CD problems e-mail [pcplus.support@futurenet.co.uk](mailto:pcplus.support@futurenet.co.uk).

## INTERNET

### Redirecting Web pages

**Q** I am trying to build a Web site and have the pick of two URLs. Is there a way to get the Web page to re-direct itself upon loading to my other site, so that people who know me don't have to worry about where my Web page is – they are automatically re-routed to the correct site? I want one site I can work on rather than having two, although I gain double the amount of Web storage space  
**Martin Burke**

**A** What you need is a meta-tag at the head of the page:

```
<META HTTP-EQUIV="Refresh"
CONTENT="2;
URL=http://www.myrealsite.
com/somepage.html">
```

After two seconds this redirects the browser to the specified URL. You would also want a message on the redirection page, asking the user to click a link to the main site if redirection does not happen automatically.

## OUTLOOK EXPRESS

### No spelling in OE

**Q** I've got Outlook Express and Lotus Word Pro. What I'd like to know is, how can I spellcheck in Outlook Express, when I've completed my e-mail, as it always seems to be greyed out?  
**Kevin Martin**

**A** Outlook Express uses the spelling checker from Microsoft Office or other Microsoft product with a spelling checker. Without one of those products there is no spelling checker and you can't integrate a checker from a competing product.

## Reader Tip

### Networking

Remote control freebie



↑ Yes, that really is another PC's desktop running inside a window. You can control programs on the remote PC pretty much as if you were sitting at it. This utility is free from AT&T.

Readers using a TCP/IP network should take a look at AT&T's UK Web site at [www.uk.research.att.com/vnc/](http://www.uk.research.att.com/vnc/). Available for download is VNC (Virtual Network Computing) – software which lets you take remote control over another PC.

The nice things about it are: (a) it's free; (b) versions are available for different platforms including Windows 9x, NT, 2000, CE, Linux, Macintosh, Solaris and DEC Alpha; (c) it couldn't be easier to set up. This should be a real boon to anyone running Linux in one room, Windows in another, and a rack full of AlphaStations under the stairs.

All you have to do is run the server program on the PC to be controlled. Set a password and a couple of options, and you're away. On the controlling PC you run the viewer program. Name the other PC, enter the password, and you're connected.

The Web site says that the Windows version is the slowest of the lot. After following the advice in the VNC FAQ I find it works best with both computer displays set to 16-bit colour depth. It's still a bit sluggish on my low-end hardware, but useful all the same. The price is right – give it a try!

**Tony McCarthy**

If you're keen, you could try



[www.spellchecker.com](http://www.spellchecker.com)

where you can buy a range of add-in spelling checkers for various products, including Outlook Express.

The OE version costs \$15 and you can download a trial edition. Dictionaries for various languages are available, including British English which you should download separately. The company also has spelling check products

that programmers can integrate into their own software.

Anyone whose problem is that they don't have spelling check available in Outlook Express when they should have, or it's there but doesn't work properly, should try these knowledge base articles: Q232950, Q220512, Q224176, Q253351, Q178238, Q191794.

Construct the URLs by translating Qxxxxzz into <http://support.microsoft.com/support/kb/article/Qxxxx/y/zz.ASP>.

## INTERNET EXPLORER

### Revisiting saved pages

**Q** When I save a Web page from IE 5, sometimes I want to go back to the original site at a later date. Is there an easy way to tell which URL the saved file came from? I often click a link on the saved page, just to take me to the right site, but I'd really like to be able to jump straight back to the page.

Sylvia Horrocks



↑ InjectURL is a free program which inserts the source URL at the head of saved Web pages.

**A** The source URL is actually saved inside the HTML file. With the page open in IE, go to View / Source and it'll come up in Notepad. Look for a line near the start beginning with:

```
<!-- saved from url=
```

You can copy the URL from there and paste it back into the Address field. I haven't looked at other browsers or older versions of IE to see if they handle the URL in the same way.

At [www.lodz.pdi.net/~eristic/free/index.html](http://www.lodz.pdi.net/~eristic/free/index.html) is a freeware program called InjectURL. This will automatically add a page's URL as a clickable link at the head of the page when saving it. It should be okay with IE, Netscape and probably other browsers, too, as it works by monitoring the folder in which you save files.

A tipette for IE users: is your Favourites list getting out of hand? It's best to go to Favourites / Organise Favourites and create sub-folders. You can then categorise saved links. But that's not the tip. When you press [Ctrl][D] to add the current URL to Favourites, it just goes to the bottom of the list. Unless you regularly take time out to reorganise it, the folder is soon in a pickle again. Avoid this by foregoing [Ctrl][D] and instead drag the URL out of the Address field by its icon. Drag it on to Favourites, which obligingly opens, and then into the right folder.

If you have a lot of favourites, a quick way to find the link you want

## DELVING DEEPER

### Trouble with TAPI?



**If Windows won't take your call, here are two things you should check**

To use Dial.exe you may have to install Phone Dialer from the Windows Setup tab of Add/Remove Programs. It's listed in the Communications section.

Dial.exe contains the bare minimum of code, doing little more than pass your command line parameters on to the part of Windows responsible for handling the telephone line. This is known as the Telephone Application Programming Interface – TAPI – and it provides a simple way for a program to place a voice call. The job is actually delegated to the highest priority program that has been registered as a handler for this task. On most systems this will be Phone Dialer – Dialer.exe. The list is in the file Telephone.ini.

The guts of TAPI is inside a pair of DLL files in \Windows\System. Tapi32.dll looks after calls from 32-bit programs, while Tapi.dll accepts calls from 16-bit software

and channels them through (or 'thunks' them) to Tapi32.dll.

I couldn't understand why Dial.exe didn't work at first. Phone Dialer came up alright, but the telephone number wasn't there. The fault turned out not to be mine, as became evident when I finally tried Dial.exe on another computer. It worked exactly as intended.

I wondered whether I had a damaged or outdated copy of Tapi32.dll. The plot thickened when I stumbled across a file called Tapi32W.dll in \Windows\System. This was unexpected. The light finally dawned when I brought up the version numbers of the various TAPI files (right-click one, select Properties, and look on the Version tab). Tapi32W.dll was shown to belong to Microsoft, and Tapi32.dll to BVRP.

BVRP is a French company best known for its Phone Tools program, supplied with

some modems including my Pace Solo. Phone Tools replaces Tapi32.dll with its own version, and renames the original Tapi32W.dll. BVRP's Tapi32.dll seems not to handle the call-placing function properly.

I'm telling you this so you know what to check if Dial.exe doesn't work, and also to give you a practical example of DLL hell. The fix? There isn't an easy one in this case.

If you reinstate Microsoft's Tapi32.dll, Phone Tools just replaces it with its own version next time you run the software, even if you put a copy of BVRP's DLL in Phone Tools' home folder. This is often a solution to this kind of trouble, but French bugs are obviously made of sterner stuff than their American cousins. It looks like I shall have to rework my program to avoid the defective DLL.



[www.microsoft.com](http://www.microsoft.com)

is to press the Favourites button to open the Favourites folder, press [Ctrl][F] and type a word you know appears in the link's title.

## WINDOWS



|prog|files|helpdesk|dial.exe

### Easy dialling

**Q** Dialer.exe is a handy little utility supplied with Windows. I use it instead of the memory buttons on my desk phone because if I unplug the thing, I have to reprogram all the numbers. Although it's a very basic program, what I like about Phone Dialer is that it is small enough to load without delay. I have it on a shortcut key for instant access. However, Phone Dialer only has ten memories and I could use two or three times that.

I know I could try to find an alternative program on the Net, but what I would really like is to have phone numbers cascading off the Start menu for easy selection. Is there a way to start Phone Dialer with the phone number as a command line parameter so I can create a series of shortcuts? I have tried, but without success.

Bob Pearson

**A** Nice idea, but Dialer.exe won't take command line parameters. You could probably run it via a scripting

program, but it was easy to write a short utility that takes command line parameters and feeds them to the Windows Telephone API (TAPI). By an amazing coincidence, this causes the system to invoke Dialer.exe as the dialling engine, unless a higher-priority third party alternative has been installed.

Copy Dial.exe to your hard drive and test it by going to the Run dialog on the Start menu. Type the full path to Dial.exe, followed by a space and a phone number. Press [Return] and the number should be dialled. If it doesn't work, see **Trouble with TAPI** above.

An easy way to enter the program's full path is to click the Browse button in the Run dialog, or to drag Dial.exe out of Explorer into the 'Open' field. Dial.exe has barely any internal error checking – it'll relay whatever you type to Windows.

You could now create shortcuts to Dial.exe, each with a different

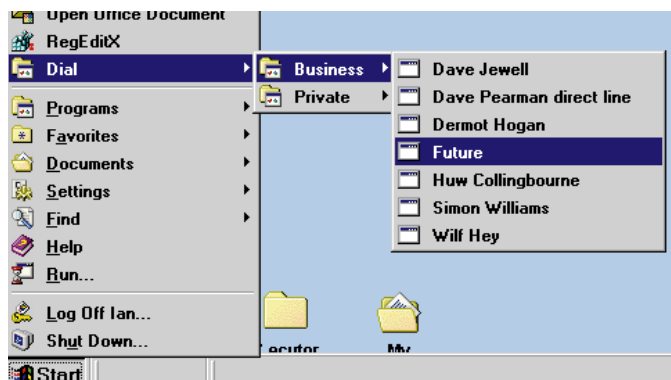
phone number. There are special characters you can insert into the number, among which are:

```
, (comma) A short delay
# [#] key
* [*] key
W Optional prefix - wait
for dial tone before
calling
```

Example for people who have to dial 9 for an outside line:

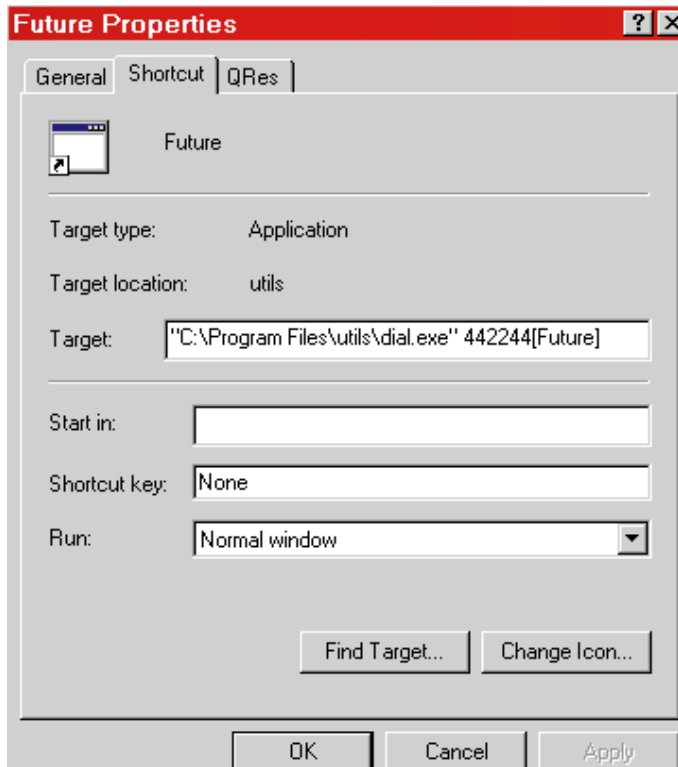
```
W9,01225421342
```

The length of the delay caused by a comma depends on your modem. It's three seconds on mine. You can have strings of commas to build up longer delays. Why do that? There are several possibilities. I set up a shortcut to dial my bank's automated response system, wait six seconds, then relay the sort code, delay three seconds, then the account number. The first typing I



↑ These shortcuts place voice calls using the modem as the dialler and Windows' own telephony services.





↑ Dial.exe on the SuperDisc fills in for Phone Dialer's inability to accept command line parameters.

have to do is to enter characters from the password. Needless to say, the bank shortcut is hidden and disguised!

Phone Dialer maintains a log of the calls you place – get at it from Tools / Show Log. This shows the number called, the name of the caller, the time and date of the call and its duration. If you want to use that feature but don't want to type the caller's identity every time you use Dial.exe, build the name into the shortcut like so:

```
<path>\dial.exe 567891 [My
mate Fred]
```

The name must be enclosed in square brackets, and it must follow the number rather than precede it. When Dial.exe detects a bracketed name at the end, it passes it through to Windows as a separate parameter which subsequently appears in Phone Dialer.

## NETWORKING

### Slow network performance

**Q** Normally I only transfer files of modest size over my network, but yesterday I had to copy 270MB from one machine to the other. It took four hours! This is 10MB/sec Ethernet kit so it should only have taken a few minutes.

This is strange enough, but I found that transferring the same

files in the other direction took only eight minutes. Any clues? I have a pair of generic network cards running TCP/IP between two Windows 98 installations. Don't tell me to use another protocol because I need TCP/IP for Internet Connection Sharing.  
**Patrick Lang**

**A** A network can get stuck in bottom gear for a great many reasons. But seeing as you're on a simple setup, and taking into consideration the one-way slow-down, we can highlight two things to check initially.

First look at the TCP/IP settings in the registry. There are several configuration options that don't appear in the Windows user interface unless you use a third party utility. These are commonly tinkered with to optimise TCP/IP settings for the Internet connection. The exact changes made with such a program will depend on various factors, but commonly recommended values for the Internet can kill LAN performance.

If the transfer speed is slow when data is going to the PC with the modem, and fast coming off it, this is another indication that your problem lies with the configuration. On the machine with the modem, back up the registry and then run Regedit. Use the Search tool on the Edit menu to locate the values named MaxMTU and DefaultRcvWindow. They won't necessarily exist, and if they don't

then this probably isn't your problem. But if they do, check the numbers assigned to them.

The prime suspect is DefaultRcvWindow. Set it to 8192 (the default value for Win9x) or delete it altogether so that Windows can decide for itself. Reboot before testing your network again. You might also try changing MaxMTU to the default value of 1500 (or deleting it) though this is less likely to have such a large impact on performance.

If you'd prefer not to dabble in the registry, try a program called MTUSpeed from [www.mjs.u-net.com/mtuspeed.htm](http://www.mjs.u-net.com/mtuspeed.htm). It's optionware – uncrippled, but the author would appreciate a small payment. Read the FAQ page before using it.

If you changed DefaultRcvWindow from a small value, you should see a big improvement. If you don't, look to your hardware. If you are using coax cable, swap the tee-pieces and then the terminators. If you're still getting nowhere, swap the cards over. While no change doesn't rule out a hardware fault, it makes it unlikely.

Another tack you can take to isolate the problem is to temporarily switch to another network protocol. If poor performance is still evident, it's probably the hardware.

As an aside, if you installed coax cable, check that one (and only one) of the terminators is earthed. It should have a wire or chain which can be screwed to the PC's case. This is unlikely to be your trouble, but it's worth mentioning as I have seen several networks where this hasn't been done.

Even under ideal conditions don't expect to measure 10Mb/sec on file transfers. There are overheads which will reduce this

## Reader Tip

### Upgrading from Win95?

**If USB doesn't work after upgrading, here's a likely reason**

Having upgraded from the early version of Windows 95 to 98SE so that I could use USB peripherals, I found that my PC's on-board USB did not work. After an enormous amount of messing around, including taking the machine down to my local computer shop, it was found that because the original version of Win95 did not support USB, the manufacturer had disabled it in the BIOS setup screen. Enabling it cured the problem. I hope this saves some others all the trouble I had over it!

**Roy Egerton**

That's a good point, but not the only possible reason. A support article at [www.microsoft.com/technet/support/kb.asp?ID=240075](http://www.microsoft.com/technet/support/kb.asp?ID=240075) deals with problems with USB devices in Win98SE running on an AMD processor or with a VIA Technologies USB controller.

figure and TCP/IP is not the fastest protocol for a local area network.

A quick explanation is in order for those who missed the detailed information on MaxMTU and DefaultRcvWindow in **HelpDesk** many moons ago. Data travelling over networks is broken into packets. When the recipient gets a packet, it sends back an acknowledgement.

MaxMTU specifies the maximum size of a packet. DefaultRcvWindow is the default size of the receive window, or RWIN. This is the maximum amount of data the sender can transmit before pausing for acknowledgement.

## BEST PRACTICE

### Testing network speed

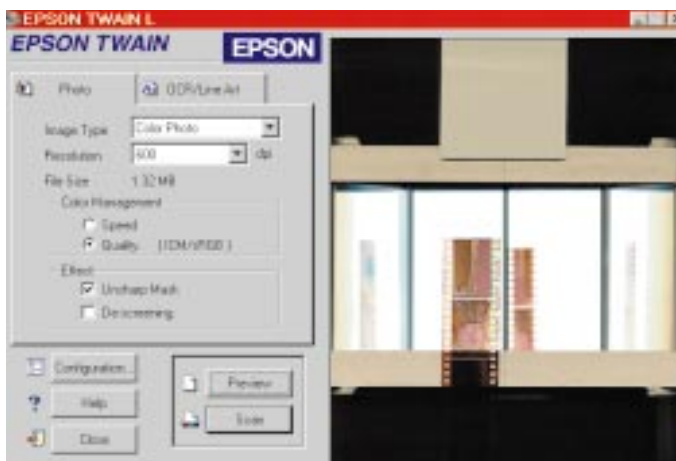
**Here's an easy way to measure the effects of changes to TCP/IP settings**

System Monitor is able to measure network speed, but I find this method easier. If you have Windows 98, a simple and direct way to measure the transfer speed between two machines is to first copy Timethis.exe to a temporary folder from \tools\reskit\scrpting on the Windows CD. Also copy any large file you can find and rename it test.dat. You want to start with a file of around 100K, and substitute one of 3MB or more when the transfer time has improved to less than a second.

Map a folder on the remote machine to a drive letter – this is done in Windows Explorer from Tools / Map Network Drive

in some versions, or with the Map Network Drive button. Assuming 'Z:' is the assigned drive letter, this batch file will measure the time taken to transfer the file each way:

```
@echo off
set netdrive="Z:"
timethis copy test.dat
%netdrive%\x
echo.
timethis copy %netdrive%\x
echo.
del %netdrive%\x
del x
pause
```



▲ A negative about to be scanned. 600dpi gives similar resolution to a print scanned at 150dpi. The pad of Positits, since replaced with legs, tilts the mirrors slightly. The central vertical line is the apex of the tent. The lines at a quarter and three-quarters along are reflections of the bottom edges.

## SCANNING

### Transparency scanning II

The DIY scanning of transparencies featured in issue 167 has been evolving behind the scenes. The folded card version was close to being usable for slide scanning, but needed to get more light behind the image. Negatives were a non-starter because they require even stronger backlighting.

In its latest incarnation the adaptor solves the problem and gives astonishingly good results. I still use a tent arrangement, but now it's constructed from a pair of 150mm mirror tiles. I bought ten for a fiver at my local DIY shed. You could lash them together with tape and string, but I was so chuffed with the results that I glued up a permanent cradle from scraps of wood. The important things are to protect the scanner bed and mirrors from glass-to-glass contact, to make the angle between the mirrors 90 degrees, and to tilt the arrangement slightly front to back.

To get the maximum light on to the scanner's sensors (CCDs), an image of the scanner's lamp has to be reflected directly at them. Since

the lamp moves with the CCDs, you don't see a white bar. It's repeated on every scan line to produce a continuous brilliant-white backdrop. Placing a transparency off-centre beneath the device gives an excellent scan.

Because the row of CCDs trails the lamp, it is important to tilt the tent slightly in the direction of travel of the scanning head. This reflects the lamp's image back up the scan bed slightly. If you don't do that, the tent roof looks dark because the lamp's image misses the sensors. On my scanner the inclination is about 3mm over 150mm, but the exact angle will probably vary between models. You will need to fine-tune it to find the right spot. As you get closer, the backdrop goes from dark through coloured fringes to intense white. Make sure the adaptor is dead square on the bed.

Scans of positive transparencies need little or no correction. It won't match a scan of a good print of the same picture, but it's impressive all the same, especially with brightly lit scenes. I have an easy fix for converting a scanned negative into a positive. Read the full story in **How to correct a negative**.

## BEST PRACTICE

### Reviving a sleepy Zip drive

**Forgot to switch on a peripheral connected to your parallel port? There's a way to avoid rebooting**

Although this tip is for parallel port Zip drives, it may work with other parallel port devices too. If you boot up with the Zip drive turned off, Windows won't recognise it if you then turn it on. You have to reboot, which is a pain in the neck if your PC takes a while to start.

Here's how to do it in half a minute. Press [Windows][Break] to bring up System Properties. On the Device Manager tab, select and remove the Iomega Parallel Port Interface item under

SCSI controllers. Close System Properties and start the Add New Hardware wizard in Control Panel. Opt to pick the hardware from the list. Select SCSI controllers. Select Iomega in the list of manufacturers. Pick Iomega Parallel Port Interface in the list of models. Click Next and then Finish.

The drive will now be available. It's said that that you may lose special settings such as a non-standard drive letter, but I don't find that happening to me.

## ADVANCED PHOTO EDITING

### How to correct a negative

**Cure the cheap photo editor blues with our free utility!**



Most photo editors have an invert or negative function that flips a negative image to positive. Even late versions of the Windows Paint accessory have the feature. The fly in the ointment is the orange dye used in negatives. This gives a pronounced blue cast in the positive version. How you eliminate this depends on your photo-editing software – it's easy with some, hard with others, and impossible with the rest.

This is what you are aiming for: zoom in on an area you know should be black. Individual pixels will vary in colour, partly due to noise in the scanner's electronics. Work out an average of the red, green and blue values of the darkest pixels you can find. RGB values are often reported when you click with the eye-dropper tool. Do the same for a white area – find the highest-value pixels and note the average values for the red channel, the green and the blue.

Let's suppose you arrive at these figures:

Black point – R=15, G=24, B=119  
White point – R=85, G=174, B=216

Taking the red channel as an example, since true black is (R=0, G=0, B=0) and true white is (R=255, G=255, B=255) we must expand the red values in the range 15-85 to fill 0-255. What we should do, therefore, is subtract 15 from the red value of every pixel in the image, then multiply by 255/(85-15). A similar operation performed on the green and blue channels will correct the colour cast.

Note that the difference between minimum and maximum is 70 for red, 150 for green and near enough 100 for blue. Spreading a range of 70 to cover a range of 255 will open up gaps between adjacent values, producing inaccuracies. In real life these gaps are filled with subtleties of tonal variation.

This is why a top-notch scanner with greater bit depth, low-noise electronics and a quality transparency adaptor will give better results – it can extract more detail with fewer errors. The raw scan will probably require less drastic processing, and so

the end product will be truer to the original.

What you can't do is just lighten individual channels by different amounts. That lifts their top ends to 255, but also pulls up their black ends into the visible colour range. Unfortunately, this is as far as some programs can go.

I got frustrated with my collection of cheapo photo editors. Some had features which got close to correcting negatives, but always with significant flaws. Low-end programs lack the precise control needed to do this job well and some are just plain buggy.

But worry not – we don't expect you to pawn a family heirloom to get the price of a copy of Adobe PhotoShop. With Visual Basic it is easy to run up an image processing utility to do exactly what's required. VB doesn't produce the fastest executables on Earth and if I'd had more time then C++ would have been my tool of choice. But VB it is, and the result is PosiTweak on the SuperDisc.

You must use your normal photo editor's invert/negative function to convert the scanned negative to a positive, then save it as a 24-bit BMP file. Drag the BMP from Explorer on to the drop-zone indicated on PosiTweak's form.

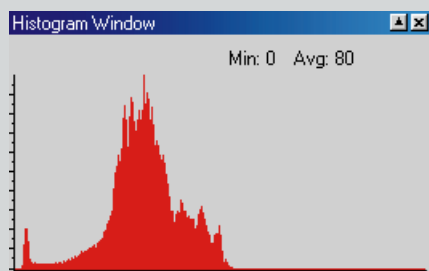
Click on the picture to find the RGB values of areas which should be black and white in the final version. Enter average values into the Black Point and White Point fields. Press Process, and watch the blue varnish peel away to reveal surprisingly vivid colours.

You will have to experiment to get optimum results, but I found that this combination of home-made transparency adaptor and processing program gives better results than the adaptor on a low-cost scanner I tried a while back. Try it for yourself – on the SuperDisc there is a sample image at various stages in the process.

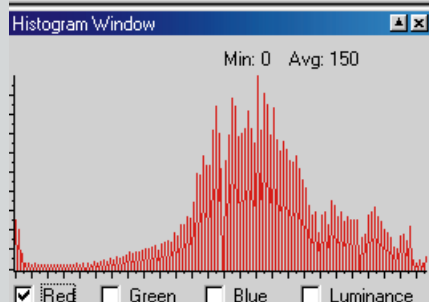
Be careful not to get grease on your negatives. It's best to handle them with tweezers or a clean, lint-free cloth. Dust looms large and colourful on high-resolution transparency scans, so invest in some cleaning fluid and tissues/cloths from a photographic or art materials supplier.



↑ A negative has an orange cast. When converted to a positive, the blue component of each pixel is emphasised.



← Before and after histograms for the red channel show that the range of values needs to be shifted left and stretched out.



↑ Set the black and white points for red, green and blue in PosiTweak, and it will compensate each channel individually.

## UPDATE

### Second printer ports

The LavaPort range offers greater flexibility with its resource settings

Soon after we went to press with issue 168's piece on installing a second printer port I located a model which is much more flexible in its resource settings than the one I bought. The LavaPort range includes ISA and PCI cards which look good on paper. I haven't had the opportunity to test one, but the devices have such a wide range of IRQs that it should be much easier to make one of these work in a heavily loaded PC.

A supplier of the LavaPort range in the UK is SCL on 0208 547 1620, [www.scl-ltd.co.uk](http://www.scl-ltd.co.uk). It says trade only on the site, but the company told me it will take orders from end users.

On a technical note, a port set to ECP mode also needs a free DMA channel. Free channels are listed in System Properties along with IRQs, and you make the DMA setting for the port in the BIOS.

I also discovered that in normal or bi-directional mode, the IRQ assigned to the port is generally not used by printers and you may get away with a setting that conflicts with another device. However in EPP/ECP mode an IRQ is needed, and a scanner or Zip drive will probably use the IRQ in any mode. Some printers demand the port be set to ECP mode, and as such do require an IRQ.

## WINDOWS

### Hiding tray icons

**Q** Is it possible to get rid of tray icons? I have several programs which place themselves there, but I never need to click them so the icons just add to screen clutter.

**Thomas Halley**

**A** Go to [www.mlin.net](http://www.mlin.net) and grab a copy of Mike Lin's TraySaver. We featured it in issue 165's **HelpDesk**, and it was on the **SuperDisc** that month. One of the program's abilities is to hide tray icons based on their tooltip text. This is quite handy because you can hide the tray icon in its normal state, but it'll reappear if the tooltip changes – as it might if there's a problem to report or the program is disabled. You need to reboot to bring any changes into effect.

## WINDOWS

### What's NT doing here?

**Q** Not a problem, but I hope you can satisfy my curiosity. In my \Windows\System\MM32 folder there is a file Ntkern.vxd. This

sounds suspiciously like 'NT kernel', but the machine has never had a sniff of Windows NT or 2000. Is this a standard part of Windows 98 and what does it do?

**Tom Rowbotham**

**A** It is indeed a standard part of Windows 98 and yes, it does relate to NT. This VxD (virtual device driver) contains parts of the Windows NT kernel – the programs right at the very core of the operating system.

They are included to solve the longstanding problem of different device drivers being required for Windows NT and Windows 9x. The relative popularity of the two operating systems often meant that manufacturers quickly produced drivers for Win9x. Drivers for NT followed sometime maybe never.

Both Windows 2000 and Windows 98 support a newer type of driver written to a standard called the Win32 Driver Model, or WDM. And the way WDM support was added to Win98 while retaining support for old-style drivers was by grafting on key parts of the NT kernel.

With Ntkern.vxd in place, from a WDM driver's point of view, both Win98 and Windows NT/2000 look the same even though they are really quite different.

Please can you find a nice picture to go here please  
It's on the server!

↑ There's a fair amount of crossover between the latest versions of Windows.



Task	Name	Complete	Status Code	Risk Status Code
1	Organize Framework	2%		01
1.1	CF Framework			01.01
1.1.1	Identify Capability	20%	2	01.01.01
1.1.2	Communicate requirements			01.01.02
1.1.3	Engender Team Buy			01.01.03
1.1.4	Communicate executive plans			01.01.04
1.1.5	Develop a process to replace CSM function			01.01.05
1.1.6	Ensure consistent delivery approach			01.01.06
1.2	Link to CSE			01.02
1.2.1	Develop closer link to CSE/CSE			01.02.01
1.2.2	Clarify confusion			01.02.02
1.3	LCB			01.03
1.3.1	Complete delivery chain			01.03.01
1.4	Blah blah			01.14
1.4.1	Something else			01.14.01
2	Assets	2%		02
2.1	Agree portfolio strategies	2%	2	02.01
2.2	Implement a working process			02.02
2.3	Assessment of controls	2%	2	02.03
2.4	Management/Optimization of Corporate Software Agreements			02.04

↑ When numbers identify structured headings Excel needs a little help sorting them out.

## EXCEL

**PCPlus**  
**SUPER**  
**DISC** | prog/files/helpdesk/padtext.txt

### Out of order!

**Q** I have a problem with an Excel spreadsheet. The attached sample has, in Column A, a reference number which is associated with the data in the same row. I need to sort the data into ascending order of numbers, with references starting from 1, and going up to 10, but between 1 and 2, for example, there could be a 1.1 and between 1.1 and 1.2 there could be a 1.1.1 and so on. The longest (and highest) reference could be 99.999999

The menu option Data / Sort works fine on numbers such as 1 or 1.1, but gets confused by 1.1.1. It also puts 1.14 before 1.2

Am I missing a trick somewhere, or is the use of this sort of a mixed number/character reference beyond being sensible in Excel? I did try my limited skills in Excel Basic, but gave it up as a bad job.

John Whitehead

**A** You have two problems. First, Excel considers numbers like 1 and 1.1 to be values. The other numbers, such as 1.1.1, are considered text because values can't have more than one decimal point. Excel sorts values before text, so all the numbers with no or one point come to the top.

Convert the references to text as follows. Select all the data in column A, and all the empty cells where data will be entered in the future. Go to Format / Cells. On the Number tab select Text. This isn't enough to convert values into text – you've just applied a new format

without changing the nature of the underlying data. To do that, the data must be re-entered.

Two quick ways are to start in the first cell and repeatedly press [F2] then [Enter]. Or you can copy and paste the column into Notepad, re-copy it there, and paste it back into Excel. The text formatting option causes strings that look like values to be entered as text.

Be careful of values like 3.1 and 3.10. Your example sheet had 3.10 as a value formatted to display two decimal places. Underneath it's really 3.1 and the trailing zero will be lost. You will have to repair such numbers before proceeding.

If you now re-sort the list, you will find that the order is now the natural one for alphanumeric strings. This works perfectly for single digits but falls over for some double-digit combinations.

For example, as you say, 1.14 is placed before 1.2. What you mean by those numbers is task 1, sub-tasks 2 and 14. Excel compares the two character by character, left to right, and sees: 1 and 1 in the first column are the same; '.' and '.' in the second column are the same; 1 in the third column comes before 2 in the third column – so 1.14 is before 1.2. Excel seems unable to treat '.' within a string as a sub-field delimiter between numeric values. Mind you, I wouldn't expect it to!

There are several possible workarounds. For instance if you were to pad all sub-fields to two digits, your desired order becomes the same as the natural sort order: 1.14 (task 1, sub-task 14) comes after 1.02 (task 1, sub-task 2) but before 1.20 (task 1, sub-task 20).

That works but looks ugly. I assume you would prefer reference numbers to retain their un-padded appearance. What we can do, then, is make a user-defined function which converts a reference number

into a padded version. If we fill Column F with that function referencing Column A, records can be sorted on that instead of Column A. Column F can be hidden/unhidden as needed.

The VBA code to do this, and installation instructions, are on the **SuperDisc** in the file PadText.txt.

## OUTLOOK

### Sharing contacts

**Q** I work for a mobile phone shop. We are just about to buy a second computer, and link it to the first with some sort of network. We keep all our contact details (including the information gathered from selling phones to people) in Outlook Contacts. We currently have over 1,500 contacts and frequently use this information when somebody enters the shop, so obviously we need this on both computers at the same time and it to be synchronised frequently.

Is there any way that the contacts in Outlook can be synchronised automatically, so

both computers have the same, up-to-date information without us having to export the data and send it across the network? We are using Outlook 2000 in Internet Mail Only mode.

Mark Abbott

**A** The way to do this is with a feature of Outlook called Net Folders. It's an optional extra which isn't installed by default. Run the Office 2000 setup program from Add/Remove Programs in Control Panel. Click Add or Remove Features and then the (+) symbol next to Outlook. Click the down-arrow next to Net Folders and then click 'Run From My Computer'. Click 'Update Now' to finish.

Document Q195867 in the Microsoft Knowledge Base gives as good an explanation of Net Folders as any I could come up with, so here it is verbatim: "With Net Folders one person creates a master folder and sends subscriptions to others to give them access to the folder. The people who receive the subscriptions accept them, and the master folder information is then replicated to their computer automatically. Information on

## DELVING DEEPER

### Q: When does 2 + 2 make 22?



**A:** When you're dealing with strings. Confused? Then you'd better read on...

The distinction between a string and a value is fundamental to the way a computer works. If you don't know the difference, it will catch you out sooner or later.

Values are things the computer can do sums with. They are stored in a compact format unintelligible to most humans, but compatible with the processor's arithmetic circuits.

Strings are sequences of text characters. Each character may occupy only one unit of storage, or byte. Sometimes it's more than one byte, but don't worry about that.

Underneath, a character is actually stored as a code value. In this system, 'A' is code 65, 'B' is 66, a full stop or decimal point is 46, and the digits 0-9 are codes 48-57. The computer also stores tables which tell it the shapes associated with character codes. This is what makes code 65 look like an 'A' on the screen.

If you type 123456 into your word processor, it is stored as a string with each digit remaining a separate entity. What's actually stored is a sequence of codes from 49 to 54. If you type 123456 into a spreadsheet, it is converted into value format.

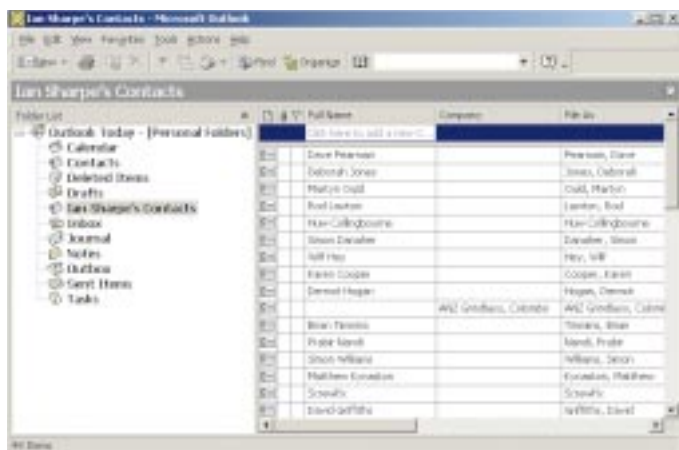
Your word processor may have an

arithmetic function. When applied to numbers in a document, they are invisibly converted to values, passed to the processor for calculation, and the result converted back to a string. In a spreadsheet the numbers are already in value format. The user interface converts them to strings so they can be displayed on the screen.

As we saw in the main text, it is possible to force a spreadsheet to store a number in string format. When you sort a list of numbers stored as values, the program orders them by size. Sorting numbers stored as strings is different. Their character codes are compared one by one, left to right, just as you would when sorting names into alphabetic order.

This often produces the correct value order. Suppose we ask the program to sort a list comprising 145 and 156. Going left to right, the two code 49's ("1") match, so we move on to the second column. Code 54 ("4") precedes code 55 ("5") so 145 must come before 156.

Using the same rules to order 145 and 15 puts 15 last. This is wrong arithmetically, but correct according to the rules of alphanumeric ordering.



↑ This additional contacts folder is shared between multiple copies of Outlook. Updates are automatically and invisibly mailed between them.

additions, deletions, and updates including what permissions users have to modify the data is exchanged using hidden e-mail messages."

In Outlook, go to File / Share / Contacts. A wizard appears in which you say who is allowed to share the Contacts folder. Click Add and select the owner of the other computer from the list. You're choosing from your contacts list, and noting what the Knowledge Base says about hidden e-mail messages being used to exchange data, it's clear that to get rapid synchronisation of data, both computers need instant or frequent access to a mail server.

This won't be the case if you're using a dial-up connection. It should be okay if you're permanently connected to the Net. If not, you would probably want to run a local mail server anyway, so that one machine connects to the Net and collects e-mail for the whole shop.

We gave away software to do this a while back... Infinite Interchange on issue 159's cover disk. There are many alternatives.

So, once you've chosen the other computer's user and you finish with the wizard, an e-mail is automatically sent to the other person containing an invitation to share the Contacts folder. They accept, and your copy of Outlook receives an e-mail to that effect. You need to set permissions for the folder so that the other person is authorised to make changes. You can change the permissions by going back to the Net Folder Wizard.

From then on, changes to the Contacts folder are automatically mailed backwards and forwards without either party having to do anything. If you set Outlook to send and receive mail every five minutes, neither copy will be far out of date.

In the secondary copy of Outlook, the shared contacts are

not maintained in the main contacts folder, but in a new folder (see View / Folder List). If you right-click on this and select Properties, there is an Outlook Address Book tab. Tick the 'Show this folder as an e-mail address book' box. When you now open the address book, this folder has become an option in the drop-down list.

## HARDWARE

### Fixing a CD-ROM drive

**Q** I wonder how many floppy and CD-ROM drives get thrown away when they aren't really broken? Quite a few, I imagine.

My excitement at finding C++Builder Pro 4.0 on the August SuperDisc quickly turned to despair when the CD wouldn't work. The drive took a long time to move between folders and to access files – Windows would seize up completely sometimes – and the Borland setup program aborted part way through with an error message.

I put the CD to one side meaning to return it for replacement. A couple of days later I found another CD was giving errors. This had previously worked perfectly. The drive must be dying, I thought. I'd had it for four years which isn't a good lifespan really.

Peering into the drive round the open drawer I could see a fair amount of dust which had probably been sucked in by the case fan. I decided to have a kill-or-cure shot at cleaning it myself.

The drive casing was a bit tricky to get off, being held together by more sprung clips than I could tackle simultaneously. When it eventually came free, access to the mechanism was obstructed

by the chassis and the circuit board. The board was impossible to remove completely, owing to wires which could not be unplugged. I managed to separate the two by about a centimetre, though, which was enough for me to be able to puff mightily at the various cogs and do-dads. The first time was like blowing smoke, there was so much dust inside.

I half expected the drive to not work at all after reassembly, but I was pleasantly surprised to find it fully restored to health. Not only could it now read the August SuperDisc and the other one, but the response time on all the discs I tried was considerably sharper. Performance had obviously been on the slide for a long time, and had only now reached crisis point.

Emboldened by my success, I tried the same exercise with the floppy drive. While there was no problem with its performance, I expect it was only a matter of

time because another cloud of dust was blown out.  
**Mark Graham**

**A** Does the PC's case have a proper air inlet at the lower front, as illustrated in last month's **HelpDesk**? Drives are more prone to dust if air is sucked in wherever it can find small gaps.

Ideally the air inlet would also be filtered. I'm told that filtration is the reason some power supplies suck air into the case rather than blow it out. Having one air inlet allows for an effective dust collection system, but I've never seen it done apart from on some server and industrial PC cases.

If the CD case won't come apart, or you want to treat several drives without disassembly, a can of compressed gas such as Electrolube Airduster Plus could be worth the money. It's available from suppliers of electronic components (see [www.electrolube.com/distributors.htm](http://www.electrolube.com/distributors.htm) for a distributor list) for around £10.

## → Further help resources

How to get information direct from manufacturers and help from fellow users



<http://prog/files/helpdesk/sites/hsnet.htm>

If you need an updated driver or other help direct from a manufacturer, see if it has a Web site. One of the search engines will help you locate it – for example [www.mamma.com](http://www.mamma.com), [www.google.com](http://www.google.com), or [www.northernlight.com](http://www.northernlight.com).

I have compiled a list of Internet addresses of many leading hardware and software manufacturers. It is in the file `hsnet.htm` which you will find on the SuperDisc every month. Copy the Sites folder to your hard disk and bookmark `hsnet.htm` for instant access.

If what you want isn't there and the general search engines turn up tons of irrelevant links, try [www.service911.com/content/SupportHelp.asp](http://www.service911.com/content/SupportHelp.asp) which has a searchable database of technical support contacts. If you find a site I haven't listed but which could be useful to other readers, please drop me a line at [ian.sharpe@futurenet.co.uk](mailto:ian.sharpe@futurenet.co.uk).

News groups are also a great source of help and advice. It is likely that your question has been asked and answered before, so before posting a message search previous postings at [www.deja.com](http://www.deja.com). And don't forget PC Plus' own news groups at [www.pcplus.co.uk](http://www.pcplus.co.uk).

# PCPlus MAILBOX

➔ This month: the dangers of port scanning, Microsoft's .NET strategy and BT and the hyperlink

## Windows Media palaver

First of all let me say that I like the magazine, so much so that I actually buy it and not just use the WH Smith library. Of particular interest is the Linux section. I just wish you hadn't put Mandrake 7 on the cover DVD just after I went out and bought it. Still, I console myself with having a printed manual.

Anyway, the reason for writing to you is to pass on my comments about Windows Media Player. You seem to be making a first-class effort to promote this offering from Mr Gates and Co. Well, I am keen on MP3 so I thought I'd give it a go. After downloading and installing it I must admit I was very disappointed. It is slow and buggy, true you say this in your articles but I was not prepared for the high CPU utilisation taken just to play a simple MP3 file, up to 40 per cent with no visualisations on my 400MHz PII. Compare this with Music Match's 5 – 8 per cent.

What have they done? Maybe I can pick up an old Cray at the car boot sale! At least I will get plenty of hot water if I do (they were water cooled), not sure I can afford the electricity bill though and might have to extend the house a bit. Can you get 3 phase supply in a domestic building? Oh well, time to uninstall WMP, no point in letting it take up valuable space on the old system. Thanks, but no thanks Mr Gates.

**Peter Norris**

## All praise to Microsoft

I congratulate Ken Heatley on his e-mail published in **Mailbox** in the September 2000 issue of **PC Plus**. I, too, have noticed how much **PC Plus** goes on about Linux (to be honest I still haven't worked out what Linux is), but what pleased me most about the letter was the second point raised about Microsoft's crimes. It's exactly what I've been thinking all along. Microsoft started up all those years ago, and has worked hard to make computers accessible to all... and... whoops! It's done too well so it has to be punished. Is this the way it should be? I certainly don't think so. We'd all like to make lots of money and do well like Microsoft, and we wouldn't expect to be taken to court if we did.

**Martin Edwards**



↑ Windows Media Player – buggy and slow.

**PCP** There's a certain amount of truth in this view. However, while we certainly don't agree with punishing Microsoft for being successful, if the US Department of Justice is to be believed, part of the reason for that success lies in illegal business practice. If you made lots of money illegally – by stealing it from a bank, for example – perhaps you would expect to be taken to court, after all.

## One cool PC

Regarding Karl Drinkwater's letter, 'Silence is golden', promoting underclocking your processor so the PC is virtually silent, I can see his point. However, I believe the way forward is to massively overclock processors. To combat the amount of heat generated, simply install the workings from a mobile home's 12v fridge into your case and, as an added attraction, a light will come on when you remove the lid.

**John Ridgard, Nottingham**

**PCP** Thanks for that contribution, John. You know, we're really starting to worry about some of you guys...

## Beware the cracker

I seem to be reading a lot about 'port scanning' lately, a system whereby hackers can scan for PC's with open ports and potentially gain access to those systems, allowing them to upload potentially confidential data and/or download Trojan Horse viruses and other nasty surprises without the user realising anything is even amiss. I've been to a

recommended site that has the facility to check a PC for accessible ports but the results were confusing and sounded slightly paranoid. Is this a real threat or just scaremongering and do commercial virus-checkers help?

**Adam N**

**PCP** Port scanning is a very real danger. If you want to know what you can do about it, turn to our complete guide to firewalls, starting on page 122.

## Win ME? No thanks!

Dermot Hogan's review of MS Windows Millennium may have left many readers, like me, deciding to stick with Windows 98. The more so when one of the big features of the September 2000 release is the new Windows Player 7. This is has been available for free download from MS for Windows98 for a few weeks now at: [www.microsoft.com/windows/windowsmedia/en/download/default.asp](http://www.microsoft.com/windows/windowsmedia/en/download/default.asp). I'm sticking with Windows98 and saving £80. Cheers and I like the new look magazine.

**Paul Bilton**

## The word is bad

Huw Collingbourne (**PC Plus** Sept 2000) writes of his frustration with Microsoft Word. He has put his finger on what – in my view – is the most significant, often overlooked, reason for widespread public disillusion with Microsoft. Put aside all the stuff about the court cases and the prospect of the BoyGod (Martin Banks, same edition). I feel personally betrayed by Microsoft. Let me explain.

I bought my first piece of Microsoft software in 1986 when I bought Word version 1 for Macintosh. For its time, this was very advanced software and I soon progressed to Word 3 when others were still struggling with MacWrite. Then I moved over to IBM PC clones and used Word 3.0 for DOS, progressing through Word 4.0, 5.0, 5.5 and then finally 6.0 for DOS. This was at a time when WordPerfect was king of the DOS word processors and Microsoft had not yet succeeded in cornering the market for desktop operating systems.

Word 1.0 for Windows was rubbish, 2.0 for Windows was full of bugs, but with Word 2.0c on Windows 3.11 Microsoft had



a package which did pretty well everything which anyone could ask for in a word processor. For me, Word 2.0c for Windows remains the reference platform, a watershed even in word processor design. I could tell the same story about Excel, which I used first on Macintosh and then Windows, and I still mourn the loss of my only set of disks for Excel 3, which gave me everything I could possibly want in a spreadsheet.

One might expect that the reward for remaining faithful to a company's products for the best part of 10 years would be for that company to maintain those products, provide bug fixes and migrate them to new platforms as those platforms (Windows NT, Solaris, Linux) emerge. What did Microsoft do? It turned around and kicked its faithful users in the teeth. It used its software as part of a marketing strategy to corner the market in desktop operating systems and force users onto the treadmill of operating system upgrades, new hardware and new features, including the completely cynical change in file formats from one version to the next to try to force all users to migrate for reasons of compatibility.

Like Huw Collingbourne, I have arrived at the point where I thoroughly detest the current version of Microsoft Office, bloated with features I don't want, options I can't turn off and unstable file formats. I long for a clean, stable version of Word 2.0c to run on my platform of choice. And what has happened? Like Huw, I have discovered StarOffice. Version 5.2 of this package is available for Solaris, Linux and Windows. Each version works almost identically. The file formats are consistent. Best of all, the components are simple to use, not burdened with unnecessary features and if you turn the options off, they stay turned off.

Thank you, Sun Microsystems. You have given me, for free, the package I need and you have also given me the answer to my dilemma about Microsoft: having been faithful to its products for almost 15 years, I can leave it behind, confident that I will never spend another penny on its products because I now have a word processor and spreadsheet I can run anywhere, anytime, on the platform of my choice, and never have to worry about file compatibility.

It's not the big day in court which will bring Microsoft down, but the drip drip drip of people like me who have left it behind because it simply can no longer deliver the products we actually want to use.

**John Robinson**

## Narrow news

In your #167 magazine you asked for comments on the new look. It's mostly okay but I do have one problem with it. In the news section the brief articles that appear in centre vertical columns are difficult to read. Not only do you reduce the font size in these columns, but you place it on a grey background. I understand the reduced font for narrow

columns but to compound this with reducing the contrast level is not helpful.

**Mike Greenland**

**PCP Thanks for your views, Mike. We hope our new, wider centre columns in News will increase everyone's reading pleasure.**

## The rise of the Internet

I usually flit between a few PC and Internet magazines, but now that you are giving the Internet a higher priority I will probably stick with the new format

**PC Plus.** I love the Internet, but magazines that are totally devoted to it can be a bit much. I'm surprised you've dropped the familiar capsule around the **PC Plus** logo on the front cover. Content wise you've passed the ultimate test of being my only reading material while on holiday for a week, so I'm looking forward to future issues. Good stuff.

**Simon Thomas**

## Music to our ears

Chris Bidmead's article in the September issue set my remaining brain cells rattling. It seems to me that the big boys of the music world could very easily reinvent their commercial strategy, at comparatively little expense, and make vast profits immediately. The answer is ridiculously simple. Any large company, such as Sony Music Corp, owns the rights to the songs

of everyone on the label, so why not make all of those tracks individually available on-line in MP3 format, at lets say 50p each. Discounts for anyone who wants the whole album, or buys in bulk. CD-style artwork and case available as separate merchandise. Traditional CD's available at under a tenner on-line, and as an MP3 format CD for something like £5 or £6. The artists would make more money, the record companies would be inundated, as was Napster, and all of it would be completely legal.

**Adam Webb**

**PCP This is exactly the business model that many companies are working towards. The problem is making small payments easy over the Internet. So called micro-payment systems have been under development for years but a truly workable system has yet to be found.**

## 'Board' reader

Many years ago you published the highlights of one of my letters. It concerned the amazingly tough quality of the plastic bags used in those days to mail **PC Plus** to subscribers. They made excellent Wellington boot liners!

Well, times have changed and the bags have changed. But I am something of a 'waste not, want not' fanatic. As such, I have discovered that if you stuff



### PRIZE WINNING STAR LETTER

## Net fury

I'd like to share a few thoughts about the Microsoft .NET strategy. I understand for many users it may seem ideal to have access to the software they need only when they need it. Indeed, it may be much more cost-effective to 'rent' the software rather than buy a copy.

However, surely this is simply going to lead to a world where one company controls everything computer-related. We could easily lose the freedom we have to purchase software and use it at will. If

every time you need to use your word-processor you have to go online and 'borrow' a copy we are all going to be tied to these companies permanently.

Then comes the need to have access to your computer whenever you require it. At present, if your system crashes you suffer and everyone else carries on as normal. But in a world where we rely on services provided by companies such as Microsoft (which we all know doesn't have a particularly good record of system stability and

security), the effects could be much greater. If Microsoft just happens to lose a server (for standard maintenance reasons, obviously) then everyone suffers.

Is this really the direction we want the computing world to be moving in? What happened to every user having their own personalised computing experience? Instead we're all going to be 'users' in a world run by some almighty company.

**Chris Murray**

## → WIN A TAXAN MONITOR!

Each month we are offering a fantastic 19-inch Taxan Ergovision 975 TCO 99 monitor worth £309 to the Letter of the Month.

The Ergovision 975 TCO 99 supports the TCO 99 environmental labelling standards, and is one of a new generation of displays from Taxan that includes 4 USB ports, enabling hot plugging for multiple devices such as keyboards, mice, speakers and printers.

For the complete range of Taxan monitors, call 01344 484646 or visit the web site at [www.taxan.co.uk](http://www.taxan.co.uk).



# LETTERS

eight of the cardboard stiffeners enclosed with the magazines into just one bag you have a very handy writing board – very necessary in my case as all my table space on all my tables is used for computer peripherals. Oddly, writing boards disappear just as fast as pens so

## Write to **PCPlus**

### Let us know what you think of the magazine

What do you like (or dislike) about the magazine? What would you like to see? And what do you think about the products and companies in the PC industry? Whatever the answer, we want to know.

→ Please write in. Short, concise letters or e-mails are much more likely to be used, as life's too short to extract the important bits from a massive submission. We give a Star Letter prize away in every issue, so get those letters coming in.

→ E-mail is the best way to send your comments. For Mailbox send them to: [pcplus.editor@futurenet.co.uk](mailto:pcplus.editor@futurenet.co.uk) or fax them to: 01225 732295.

→ Alternatively, print your letter and send to: Mailbox, PC Plus, Future Publishing, 30 Monmouth Street, Bath BA1 2BW.

→ Every letter will be read by the editor, and the most interesting (not the most complimentary!) letters will be printed and answered on these pages. We reserve the right to edit letters to fit, and the opinions expressed on these pages are those of PC Plus readers, and do not necessarily represent those of the editorial team. Letters and e-mails are assumed to be for publication unless stated otherwise, and published versions of letters become copyright Future Publishing.

→ We regret that we can't always answer letters personally, but questions of general interest may also be covered in HelpDesk.

you can never have enough of them. There is just one minor annoyance: the cards are a fraction shorter than A4. Any chance of extending them? The bags would stand it!

**Bill Pearce**

**PCP** Thanks for the tip! Any more wannabe Blue Peter presenters out there?

### Patent nonsense

In issue 167 at the end of **Mailbox**, the talking point is on the subject of BT claiming the patent on the hyperlink. This is yet another company trying to take control of the Internet, but this time it's getting stupid. Microsoft have already ruined the use of JavaScript on the internet by forcing the webmaster to make 2-3 different versions of the script just to work with various versions of IE, whereas almost every other browser uses Sun's standard.

Back to BT though, what do they plan to do if they do get the patent on the hyperlink? The hyperlink goes further than just HTML and Web browsers, back in 1995 your former sister mag **ST FORMAT** gave away a program called HyperGEM, completely unrelated to HTML but using the concept of hyperlinks and combining graphics, text, buttons, and so on to create easy to read documents, along with many similar packages. There is also the matter of Microsoft's help system which again used hyperlinks, many diskmags used hyperlinks to navigate them, back when the World Wide Web was still a dream.

If BT expects to try an extract money from anyone who has 'broken' the 'patent' then they are going to be hunting a long time, and will also be facing some

powerful opposition such as Microsoft who must now have more lawyers than programmers. If BT carry on like this they may find they are shooting themselves in the foot more than helping themselves, as the resulting bad publicity ensues.

**Hayden Smith**

### Too much code?

As a new subscriber, I thought I'd take you up on your invitation to provide feedback on the magazine. To be blunt, I think that it's a little too heavily focused on programming. Putting the regular languages aside, it's not surprising to see a series of articles on Uncle Bob's object-orientated interpretation on Polish BASIC, or some other language even more esoteric.

I took out the subscription when there was a slight change in focus, and articles on networking were introduced. But these seem to have gone from basic stuff like peer to peer connections almost straight into using Internet Information Server. Something I'd like to see is the ins and outs of setting up your own network using TCP/IP. It seems to be the main protocol needed to play network games, and of course it would enable people who dabble with different operating systems to connect them together.

You've got a **Windows World**, a **Linux World** and a **Programmers' World** – how about a dedicated Network World? I'm sure the growing number of households with 2+ PCs would welcome it.

**Martin Lowe**

**PCP** Thanks for your feedback, Martin. What do the rest of you think? Do we concentrate too much on programming? Or should we be doing more? Let us know.

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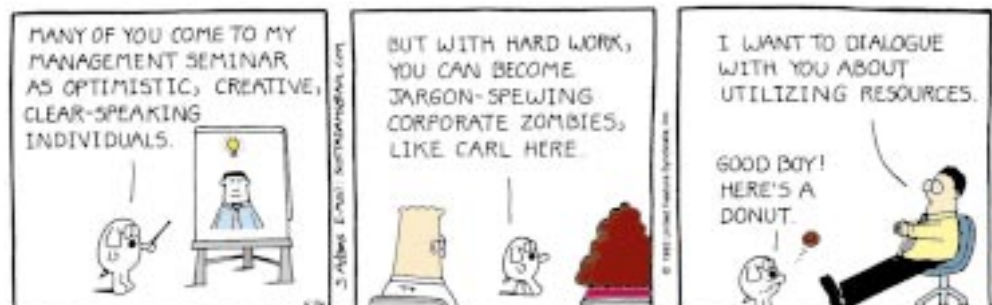


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# Active Server Pages: PART ONE

# Getting started with ASP

NEW  
SERIES

You've probably heard of ASP but what does it do? And why does it matter? **Paul Warner** reveals how ASP is an essential tool for Web site developers (and fun for the rest of us)

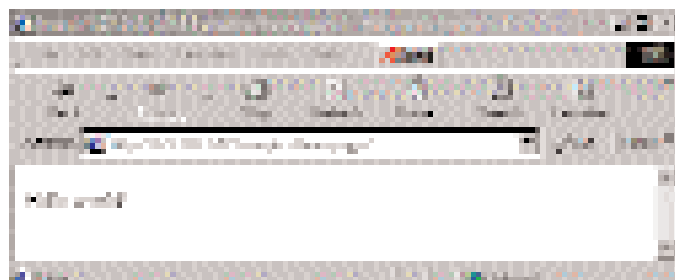
**M**icrosoft isn't renowned for coming up with products that are not only useful, but also accessible to anyone using non-MS software.

Well, things are looking up and the introduction of Active Server Pages (ASP) is one of the most accessible features included in the Internet Information Server (IIS).

If you're putting together a Web site then you may be using something like FrontPage to develop your pages and produce the HTML for each page. Hard cases might well use a text editor to program directly and add bits of Java code or

interpreted scripts to add fancy features to their pages. These pages are typically downloaded to the machine using the browser (the client) from the ISP holding your Web pages (the server). The client browser then interprets the code and displays the page.

ASP turns the concept upside down and enables the server to generate the pages on its side of the transaction. They can call other programs, run scripts and use ActiveX components to generate the final HTML code in a simple format that is easily displayed on any browser. Or as Microsoft puts it, "Active Server Pages is an open, compile-free application



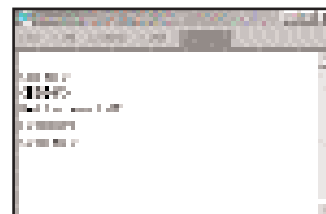
↑ When you view the site with your browser the ASP is processed and sent using simple HTML text. Any browser is capable of viewing the resulting output and doesn't need any scripting language enabled to view the page.

environment in which you can combine HTML, Scripts and reusable ActiveX server components to create dynamic and powerful Web-based business solutions."

## How can ASP help you?

ASP enables interactivity between the client and the server. Running scripts on the server machine enables the server to process information from the client machine and return information after processing the script to the client machine or store it on the server as text or in a database. This may sound a bit long winded and a few examples will serve to elucidate.

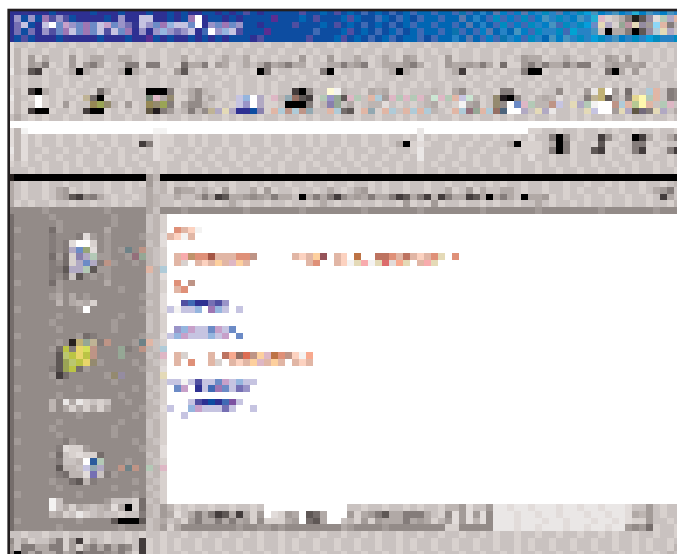
A trade only supplier wouldn't want you and me finding out their trade prices and working out the mark-up in their retail outlets. Retailers could open up their Web pages and in order to gain access to the trade price list would be asked to enter their name and password. The ASP would then process this information and the name and



↑ Just to check, open up the source code in your browser and take a look at the code. No sign of any special script – just plain HTML.

password checked against a database of recognised retailers. With a simple VBScript the ASP could not only check the name and password of the retailer but also check their status and respond with the discount level relative to their order level. If their account is overdue then the ASP could shut down their access and ask them to pay their bill.

You could use an ASP to access a database, say an online catalogue. Rather than step through the pages, why not use the dynamic features of an ASP to select categories, maybe several drop-down selections, and allow the server side script to interrogate the database and return information on your specific requirements.



↑ The ASP uses %> tags that contain VBScript code. When the page is requested, this code is processed on the server before being sent to your browser. You can choose the type of scripting you plan to use. By default this is VBScript but a simple declaration at the start of your page can set up another such as JavaScript.



## → Creating your first ASP

Follow the tradition of thousands before you – type 'Hello World'

With PWS running, you can click on the tray icon and open up the PWS Main control centre. The opening screen shows the address and home directory of your Web publishing site.

You can use the inbuilt editor to personalise your home page layout; it has an ASP form template that is used to gather information for your page when you first start up. Enter your information into this form and it updates your home page. Rather than edit this, create a simple ASP script in the c:\inetpub\

wwwroot subdirectory. Use either a text editor or FrontPage to try out the obligatory "Hello World".

VBScript is the default scripting language for an ASP and is included in a page with HTML code. The script is held between tags. In HTML these are < and > and with VBScript all you need is an extra % sign, the tags for the script would be <% and %>. The classic "Hello World" would look something like:

```
<%
Test Variable = "Hello world!"
%>
<HTML>
<BODY>
```

```
<%= Test Variable %>
</BODY>
</HTML>
```

The first bit of code sets up a VBScript variable with the string "Hello World" and the main body of HTML displays the content on the string as simple HTML when viewed in a browser. Load your new ASP page with your browser and look at the source code. In Internet Explorer this is in the view menu option and you should find the plain HTML code:

```
<HTML>
<BODY>
Hello world!
</BODY>
</HTML>
```

The server has processed the ASP page and sent the resulting HTML code to your browser. It doesn't take a genius to see the possibilities of using simple VBScript on the server to manipulate information, apply conditions and use all the built in functions available to create dynamic interactive Web pages in plain HTML.



↑ The Personal Web Server has several interesting features to help create and maintain your site. However, for the purpose of trying out Server Scripting it's probably easier to use a simple text editor to enter your code.

With the ability to use real-time information, you can set up your ASP to check the local time or language, and display information on your Web pages that is pertinent to specific time zones or regions. Banner ads could be set up to run in different languages or priorities depending on the time of day.

### Setting up a development environment

If you're running a client side script, it's easy to test your code using your local browser.

Provided VBScript or JavaScript is enabled, the page containing your HTML and scripting can be viewed and debugged locally.

But running scripts on the server

is a tedious task. Each time you want to try out the latest amendment the new information has to be uploaded to your server before it can be run and checked.

Historically server side programming has been an area for those of 'Guru' status requiring familiarity with languages such as C and Perl to enable the CGI (Common Gateway Interface) to process information from the client, such as filled in forms.

Each time a CGI script is run, a new process is started on the server and, if you're using an interpreted language like Perl, requires the interpreter to load for each instance, taking both time and memory.

Using ASP does open up the environment and enable the use of some of the modern Visual languages like Visual Basic or C++. ASP also runs as a service and should be more efficient than CGI, making full use of multithreading.

The simplest solution to test server side scripting with ASP is to set up a server on your local machine. This isn't as complicated as it sounds and won't cost you anything – other than your time and perhaps one download.

If you're using Windows98 then you'll find an add-ons subdirectory on your distribution CD.

All you need is to use the Run command from the start menu and enter X:\add-ons\pws\setup.exe

where X is the letter of the CD drive. This installs Microsoft's Personal Web Server. If you're running 95 you can download the latest version from Microsoft's Web site at [www.microsoft.com/windows/ie/pws/](http://www.microsoft.com/windows/ie/pws/).

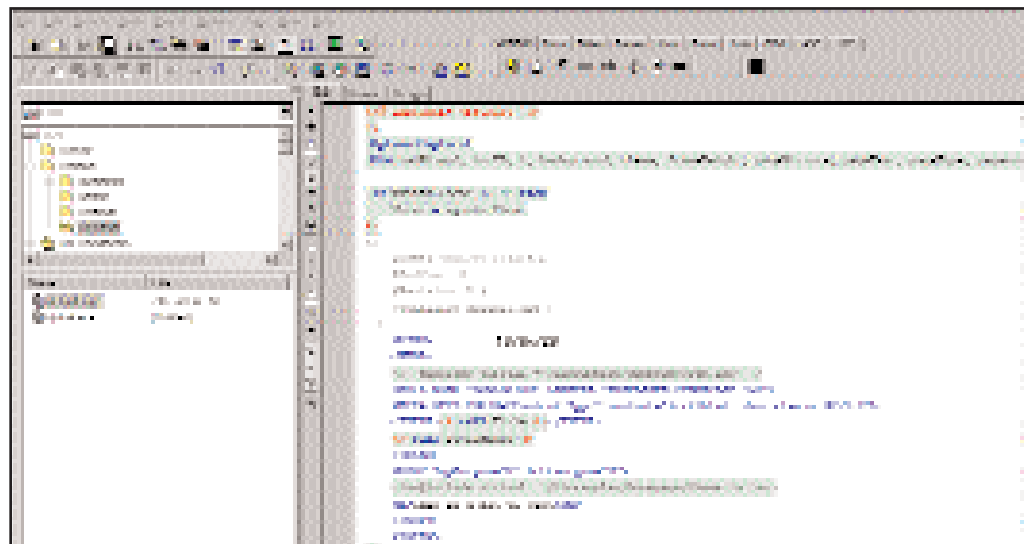
Installation is fairly straightforward and I found it useful to include the HTML documentation pages, these can be installed at any time but aren't included in the default installation. You can use the detailed set up the first time round or add/remove components by running the set-up again.

Once installed, you should have a home page set up at <http://yourcomputername>. If you followed the default choices correctly, you should also have a root directory for your new Web site at **C:\inetpub\wwwroot**.

I've got FrontPage installed on my machine which comes with Microsoft's Office Suite but you can use any text or HTML editor to look at and edit your pages. **PCP**

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**PCPlus**  
**NEXT MONTH**  
Getting Dynamic.  
Setting up an ASP for  
information processing  
using VBScript and  
applying some simple  
control structures

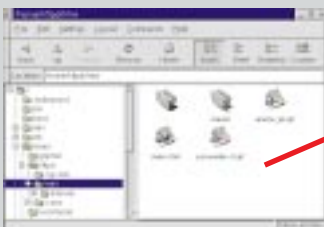


↑ You can use any text editor to enter your server side page code. However, if you're running Office you may already have FrontPage installed as is your default ASP file editor. We've taken a shine to Homesite from Allaire and you can download a 30-day trial from its site at [www.allaire.com](http://www.allaire.com).



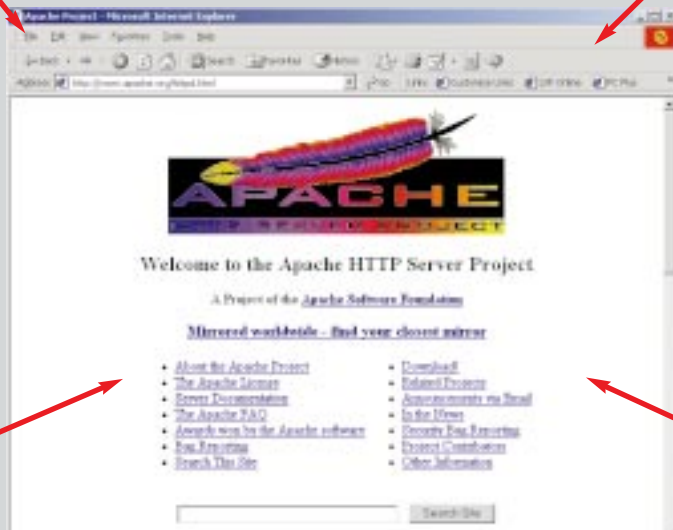
## ↑ HTTPD.CONF

This is the main Apache configuration file that controls the behaviour of the server and the individual modules and components that it interacts with. Only the superuser can make alterations to this file, as misconfiguration could break your server.



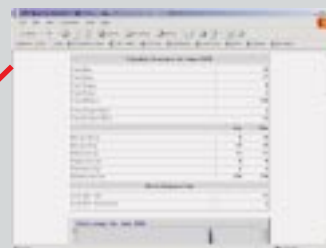
## ↑ DOCUMENTS AND CONFIG FILES

A Web 'document' can be anything from an HTML file to a GIF, JPG, or PNG image. Your Web server is useless without Web documents, but also relies on per-directory config files, such as .htaccess, for full control of the server.



## ↑ APACHE

The Apache Web Server is at the heart of these components, linking each of them together to produce a finished Web page, or complete Web site. Apache is normally dependent on a number of modules and components for normal operation.



## ↑ ACCESS AND ERROR LOGS

Apache logs every file that is requested by every client, and also logs any errors that resulted. There are several packages available for analysing log files, including Webalizer at [www.webalizer.com](http://www.webalizer.com).



## ↑ COMANCHE CONFIG TOOL

Comanche is one of the many tools that apply an administrative front end to the httpd.conf file, to make system administration that much easier. You can also use a tool such as webmin, or even linuxconf if you really don't want to hack httpd.conf yourself.

## Getting started with Linux

# First steps with Apache

Install Apache and you could have your own Web server within minutes. But why bother? **Maurice Kelly** reveals all...



**M**any Internet users are now dabbling in Web publishing with the free Web-space provided with their dial-up accounts. While it is perfectly acceptable to produce Web pages and upload them to the host server without testing, many users are eager to test their pages through their own Web server.

The Apache httpd daemon is the most popular Web server software in use on the Internet,

with a market share of over 60 per cent. It's freely available for download from the Apache Web [www.apache.org](http://www.apache.org) site, or you can grab it from this month's Linux Mandrake **SuperDisc**.

Apache runs on many operating systems (including Win32 platforms such as WinNT/9x,) but it runs most securely and reliably on Unix-like operating systems. Your reasons for running Apache on your Linux box will be varied but, for many, revolve

**PC Plus SUPER DISC** See Linux Mandrake 7.1 disc

around testing Web sites, keeping an archive of documentation, or possibly just for the fun of it.

The first step is to check whether or not Apache is actually on your system. You should check that the Apache package has been installed by using your system's package management tools. If you use an RPM-based distribution, then open a terminal window and

issue the command:

```
$ rpm -qa | grep -i apache
```

You should see a line such as the following (possibly among others)

```
apache-1.3.6-7
```

This implies that the appropriate Apache package is installed on your system. If it isn't you should install it following Chris Jones' instructions in **PC Plus** issue 166. You can find the tutorial on our Web site.

To actually utilise Apache you must be running the httpd daemon on your system – you can check this by opening a terminal window and issuing:

```
$ ps aux | grep httpd
```

The ps aux command lists all the running processes on the system, and the 'l grep httpd' filters this down to display only results which contain the string httpd. If Apache is running you should see a number of lines such as:

```
nobody 649 0.0 5.5 5000
3500 ? S 19:43 0:00 httpd
```

If you don't see a line such as the above, then it is likely that Apache hasn't been configured to run (either at all, or in the runlevel your system boots into). If this is the case then you might want to set Apache to start in the various runlevels you will be using (you should check your distribution manual for details, but for a quick


[www.pcplus.co.uk/forums/linux](http://www.pcplus.co.uk/forums/linux)

guide see **Running At Startup**.) If you're happy with manually starting Apache when you want to test some of your pages, then issue the command `/etc/rc.d/init.d/httpd start` or `/etc/init.d/apache start` depending on your distribution.

## Maintenance

Apache is highly-configurable software, and its configuration is stored in the file `httpd.conf`. Note that it is only recent versions of Apache which use just one configuration file — older versions used three files: `httpd.conf`, `srn.conf`, and `access.conf` which are now combined into one file. You can tweak your server setup by altering the parameters in the configuration files. These files can be altered directly by editing the text files themselves. However, you may wish to take some of the effort out of the job by using a configuration tool instead. Some distributions come with their own tools, though I'll examine the use of the 'Comanche' (COnfiguration MANager for apaCHE) tool.

Comanche isn't often supplied as standard with Linux distributions so you should grab a recent version of it from [www.comanche.org](http://www.comanche.org).

When you run Comanche for the first time it will ask you to create a configuration for your Apache installation. When the Apache Installation Config window appears, press the Add button. In the Add New Element window specify a name for this configuration, the location of your `httpd` binary, the location of the config file, and the server root directory.

The server root directory may be `/etc/httpd`, `/usr/local/apache` or something similar. Once you feed it with this information, it should parse the files and then enable you to start making modifications.

I won't actually be re-configuring any major parts of Apache during this tutorial (I'm assuming your distro got everything right) but I will use Comanche to fetch information from your `.conf` files without having to wade through all the text to find the value of the directives you are looking for.

The primary directive we need to obtain is called `DocumentRoot`. Apache doesn't serve all your files from the root directory, which could put confidential information on display. Instead it assigns a particular directory to be the root for the Web server.

Finding the directive is straightforward — in the main Comanche window click the name

of your machine to open the tree. Then expand the Network Services branch, and expand the branch for the configuration you defined when you started Comanche. If you now open the page marked Default Web Server (simply by clicking on the text) you can click on the first link Default Web site properties. A configuration window appears, and the first item should be your `DocumentRoot`.

## Adding Web pages

Now that the Web server is up and running you will, no doubt, be wanting to start serving up your own HTML pages instead of the server defaults.

While using Comanche I was able to ascertain the value of the `DocumentRoot` directive which specified what root directory `httpd` looked in when it was asked to serve a particular document. Knowing this you should navigate to the `DocumentRoot` using a file manager (such as `kfm` or `gfm`) or the shell.

Once there you should take a copy of any existing files in case they need replacing at a later date.

Once you have done so, you can now start dropping in your own HTML files by copying them from the directory in which you created them. It may be tempting to copy all your HTML documents over to the Web server at the start, and work directly on the server from then on.

This isn't recommendable — if your server is visible to more than just you (that is, it's on a network and other people can access it) then editing the files on the server can lead to half-finished pages being visible to the public.

Even if you are only testing your Web site locally before uploading to your ISP, it is useful to work on a separate copy of your site, enabling you to have a backup in the event that foolish changes are made to important pages.

If you can't write files to the directory specified as `DocumentRoot`, then it is probable that you don't have write permissions to that area. For example, my `DocumentRoot` is `/home/httpd/html/htdocs`, so as root I issued the command:

```
$ chmod +rw
/home/httpd/html/htdocs
```

This allowed me to read and write files in the specified directory.

Not only do most ISPs offer free Web space, some also offer access to a `cgi-bin` directory. While it is

## Running at Startup

If it isn't working, try this

If Apache is not starting in your default runlevel then you may want to adjust your system so that it does. If you are running a version which came with your distro, then it is likely that you will have a script called `httpd` or `apache` in either `/etc/rc.d/init.d` or `/etc/init.d/`. If you are running a version you compiled yourself, then you should copy the `apachectl` script from your `apache/bin` directory to wherever your `init.d` directory is (call the script `httpd` when you copy it.)

Determine your default runlevel by looking for the line `'id:x:initdefault:'` in the file `/etc/inittab` where `x` is the default runlevel number. Change into the directory `/etc/rc.d/rcx.d` or `/etc/rcx.d` (where `x` is that number we found before,) and issue the command

```
$ ln -s ../init.d/httpd
s85httpd
```

You should now change into the directory `/etc/rc.d/rc0.d` (or `/etc/rc0.d`) and issue the command

```
$ ln -s ../init.d/httpd
K15httpd
```

This causes Apache to exit cleanly when you shut down Linux. You should repeat that command in the `/etc/rc.d/rc6.d` (or `/etc/rc6.d`) to take rebooting into account.

```
}
```

By now Apache (or more precisely the HTTP daemon) should be running, and you should see some sort of output when you browse to `http://localhost/` in your Web browser. If you are trying to access your Web server from another machine on your local LAN, then you will have to specify its IP address or its machine name.

possible to test static HTML on a local Web site without a running Web server, you will find it harder if you want to test CGI programs. You could test the programs directly on your ISP's server, but that could be costly in terms of online time.

## Using CGI programs

While a `cgi-bin` directory appears as though it should be in a directory called `cgi-bin` of the `DocumentRoot` directory, it is actually an alias to another location.

You can determine where to put your CGI programs by opening Comanche again, and locating the value of the `ScriptAlias` directive.

Navigate once more to the window used to locate `DocumentRoot` — this time open the `Alias` branch, and examine the CGI node where you should see the `/cgi-bin` directory alias.

To test the server you should create a file called `'test'` in the `cgi-bin` directory. Into the file you should enter the following text:

```
#!/bin/bash
echo Content-type:
text/html
echo
echo Hello World!
```

When you have saved the file you should make it executable by issuing the command

```
$ chmod +x
/home/httpd/html/
cgi-bin/test
```

Substitute the appropriate path to your own `cgi-bin` directory. Now open your Web browser and view `http://localhost/cgi-bin/test`. If

you get the Hello World! text back as expected, then your `cgi-bin` is working correctly.

I used a Bash shell script above to verify that the server was running properly, but probably the most popular language used for CGI scripting is the famous Perl. Fortunately for you, Charlie Stross has been divulging some Perl knowledge since issue 163, and he embarked specifically into CGI scripting in issue 165.

## Read that manual

The number of Apache directives is quite large (as can be seen when you navigate in Comanche) and I've just touched upon utilising some of the defaults. Fortunately the Apache team supply excellent documentation with the standard distribution, and your Linux distro should also include this in its Apache package.

The standard location for the Apache documentation is in the `/manual` directory of the server itself. Point your Web browser to `http://localhost/manual` for the full rundown on what Apache can do.

If, for some reason, you don't have the documentation, it is available on the Web at [www.apache.org/docs](http://www.apache.org/docs). **PCP**



**Maurice Kelly**  
mkelly@deadheart.org.uk

**PCPlus**  
**NEXT MONTH**  
We look at using  
command line tools





Expert Linux

# Building PHP with MySQL support

David Coulson knows that the future of the Web lies in database driven Web sites, and he wants you to know too...



**L**ast month I looked at setting up a MySQL server, so you should have a fair idea of how to use the terminal MySQL client as well as setting up access permissions. This time I'll be using PHP to create a simple database integrated Web page, using a variety of SQL queries.

Even if you're not familiar with Apache or PHP, building PHP with MySQL support as an Apache module is straightforward enough. First, download the latest version of PHP4 from [www.php.net](http://www.php.net). If you don't have Apache installed, get the latest version from [apache.org](http://apache.org). There is plenty of documentation around for building Apache so we won't go into that, but make sure that you have DSO support or what we are going to do won't work.

Compiling PHP4 is a matter of running `./configure` with the options we require:

```
./configure \
-with-
apxs=/usr/local/apache/bin/
apxs \
-with-mysql=/usr/local/mysql \
-enable-track-vars \
-isable-debug
```

If you didn't build Apache from the source, you'll need to change the '—



**PATH:** `|prog|linux|php.htm`

with-`apxs`' option to point to the correct location of the `apxs` binary. You might want to add some options of your own if you need other features, but that's all you need for what we'll be doing. After that has done its thing, do `make && su -c "make install"`. It automatically adds the `php4` module to the `httpd.conf` for Apache, but you'll have to add the MIME types for PHP4:

```
AddType application/
x-httpd-php .php
AddType application/
x-httpd-php-source .phps
```

Now you just need to restart Apache and you're away. **PCP**



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dcoulson@pcpmag.co.uk

PCPlus

**NEXT MONTH**

More database calls to MySQL using Apache and PHP Hypertext Processor

## → Setting up database tables

How to store information in a database and then search for it from a Web page

Before I can jump in and start coding stuff, I need to set up our tables to store the information. Last time, I created a database called `Web`, which I'll store all my tables in, so launch MySQL and connect to the `Web` db using:

```
mysql -uWeb -pWebApp web
```

I'm going to set up a database to store information about my collection of MP3s, which I can then search for from a Web page. As with everything, there are hundreds of ways to design the tables to store the data but I'm going to create separate tables containing artist, album and track information so it's reasonably flexible.

First, I need a table to store artist names. As an artist won't be referencing any other table, unless you want to expand it into record companies, there only needs to be two columns: one for the textual name of the artist; and another for a numeric reference, which I can use later:

```
CREATE TABLE artists (
aid MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
artist TINYTEXT NOT NULL,
PRIMARY KEY (aid),
KEY artist_idx(artist(5))
);
```

The first line tells MySQL that I want to create a new table called `artists`. Anything in the parenthesis after that is taken as being table definition information. My first column, `aid`, is an integer but as I won't be having two billion artists in my collection, I'll limit it to a 16-bit integer, giving around 65,000 possible artists. The `UNSIGNED` statement specifies that I can't enter a value less than zero in that table, and `NOT NULL` stops NULL values being entered. Both of those are used to save memory because the actual values inserted into `aid` are done by the MySQL server, rather than the client, due to `AUTO_INCREMENT`.

When you try to insert a row into this table, the value of `aid` automatically increases, independently of the actual value you tell the server to use. If I didn't use this but required an incrementing value, I would need to perform a query to get the highest value of `aid`, add one to it, and then use that as `aid` in the new row. Not exactly a clever way to do it because another MySQL query could come along while we're busy adding 1 to the value, and use it for its own row.

The `artist` column is fairly obvious except that I'm using `TINYTEXT` rather than just `TEXT`, limiting the length of the string to 256 characters, again to save a little memory. If you've looked at MySQL before, you'll also have noticed the `BLOB` string type. `BLOB` and `TEXT` are exactly the same, so you could use `TINYBLOB` here but when you compare the data in a `BLOB` cell it is case-sensitive. While this is incredibly useful for some data, for something like this where we will be searching, we don't want to have to type the artist name in the same case if we don't have to.

`PRIMARY KEY (aid)`, sets `aid` as the first key in the table. Keys are used to optimise queries so rather than going through the whole table, it can quickly find out which rows have that particular value of `aid` and then perform the rest of the query on just those which, if you've got thousands of rows, is handy. The next `KEY` is only used when you have `artist` in your query, but I can't store the whole string as it would use too much memory. Depending on the type of data, you have to make an educated guess as to when the string will be sufficiently different enough to optimise the query. I've just used five here as an example, but you might choose to change it to something else.

I'll enter some data into the table now, which is done using `INSERT`, like I did to add new users to the `user` table last time. As



aid is set to automatically increment, I don't need to bother inserting that, so I can just do:

```
INSERT INTO artists (artist) VALUES("An Artist");
```

If I then do a

```
SELECT * FROM artists;
```

I have one row with an aid of 1 and with An Artist as the artist. If we then insert another row;

```
INSERT INTO artists (artist) VALUES("Another Artist");
```

and perform the SELECT again, you'll notice that the second row has an aid of 2. If I chose to delete the row with an aid of 1, then insert another row, the new row would have an aid of 3, as it doesn't use up space which was released by deleted rows.

I need two more tables to store both track names, the albums they are taken from and reference them to the particular artist:

```
CREATE TABLE albums (
  alid MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  aid MEDIUMINT UNSIGNED NOT NULL,
  album TINYTEXT NOT NULL,
  PRIMARY KEY (alid),
  KEY aid_idx (aid),
  KEY album_idx(album(5))
);
```

This is almost the same as the artist table, except that it has a third column to store the value of the artists row in the artists table. I've used aid again to store the artist ID, both for consistency and so we can use some other MySQL features, but it could, of course, be called anything you like:

```
CREATE TABLE tracks (
  tkid INT UNSIGNED NOT NULL AUTO_INCREMENT,
  alid MEDIUMINT UNSIGNED NOT NULL,
  name TINYTEXT NOT NULL,
  track INT(2) UNSIGNED NOT NULL,
  PRIMARY KEY (tkid),
  UNIQUE uni_tk (alid,track),
  KEY alid_idx (alid),
  KEY track_idx(name(5))
);
```

Again, this table is almost exactly the same. I've changed the tkid which stored the track ID into a 32-bit integer just in case someone has that many tracks. There is now also a track field which contains the track number. INT(2) specifies a two digit integer, so I don't need to waste space declaring even a TINYINT.

You'll also notice that I've only specified the album ID, rather than both that and the artist ID. As the album table references the artist, I don't need the track to do it. Unfortunately, this means that any singles also have to occupy the albums table so the database functions correctly, but because many have four or five tracks, it won't be totally disjointed. I also use UNIQUE on both alid and track, so you won't end up with two tracks on the same album with the same track number.

Now we need to insert some data. I'm just going to add a couple of entries so I can test out the database but if you've got a lot of MP3s, you'll probably want to write yourself a little script to do it for you:

```
INSERT INTO albums VALUES(0,1,"An Album");
INSERT INTO albums VALUES(0,2,"Another album");
INSERT INTO tracks VALUES(0,1,"First Album Track",1);
```

```
INSERT INTO tracks VALUES(0,1,"Second Album track",2);
INSERT INTO tracks VALUES(0,2,"First another album track",1);
```

I haven't looked at using MySQL databases with PHP yet, so I'll start by creating a database connection. PHP supports both normal and persistent connection but it's unlikely that you'd ever use a persistent connection, particularly with a highly-used Web server. I connect to MySQL using the 'mysql\_connect' function:

```
$dbh=mysql_connect("localhost","Web","WebApp");
```

To disconnect, I either use:

```
mysql_disconnect($dbh);
```

or just let PHP handle the connection, which it closes after the script has executed.

Queries are easy to do, although it's worth remembering that the query is actually just a PHP string, so we have to make sure I send the right data to the MySQL server, especially when dealing with quotes:

```
$result=mysql_query("SELECT id FROM web.tracks
WHERE name=\"foo\"");
```

I have to escape the " which will be sent to MySQL, so PHP doesn't think we mean the end of the string. I could have used a ', rather than \". If you want to insert a " into a MySQL string you would use \\", the first 2 \ would insert a \ into the query, the next would escape the quote in PHP so only \" would be sent to the MySQL server.

If you have multiple database connections, mysql\_query uses the last server you connected to. If you need to specify the server, such as if you were copying data from one to another, then you can pass \$dbh as the second argument to the mysql\_query function.

Once we have \$result I can extract the data in many forms, the most usual being \$row=mysql\_fetch\_array(\$result). Each time I call the mysql\_fetch\_array function the next row of output from the query is inserted into the \$row array, the column name being the key. I can loop the function, so you get each row of output using something similar to:

```
while($row=mysql_fetch_array($result)) {
  print $row[id]."<br>";
}
```

Note that an @ is used to suppress any error output because if the query returns no rows, mysql\_fetch\_array() will fail. The script will just search for a specific track from within the database using a search variable passed to PHP via a form. Start the script with the following:

```
<?php
if(!$search) {
  ?>
  <form method=post action="<?php print
  getenv(PHP_SELF); ?>">
  <input type=text size=20 name=search><br>
  <input type=submit value="Search">
  </form>
  <?php
  } else {
    $dbh=mysql_connect("localhost","Web","WebApp");
  }
  ?>
```

To search in MySQL, we use the LIKE expression. This enables you to compare two strings using wildcards, so you don't have to match the entries exactly. There's a lot more to cover this month, you'll find plenty of extra material on the **SuperDiscs**.



# Your Linux questions answered

Got a Linux query? Our expert, **David Coulson** is on hand to solve your problems



[www.pcplus.co.uk/forums/linux](http://www.pcplus.co.uk/forums/linux)

## Root access

**Q** I have set up a telnet daemon on Mandrake 7.0. I can access the server remotely as all other users except root. Is this a security feature? If so, how can I grant root access also?  
**Chris Bates**

**A** Telnet uses /etc/securitytty to find out which terminals you are allowed to login

from, usually only tty1 through to tty8. Simply delete this file, then you can login as root from anywhere. As neither data nor passwords are encrypted with telnet, it's not really a good idea to login as root using telnet, especially over a public access network. A far more appropriate option is to use ssh, [www.openssh.com](http://www.openssh.com), which encrypts all data transfer, plus you can permit root logins using it.

## Bootable floppies

**Q** I have just installed Red Hat Linux version 6.1 on my old PC. Before I do anything else, I would like to make a bootable floppy just in case LILO falls over for some reason. Logged in as root user and with the floppy drive mounted, I have tried typing

```
mkbootdisk -device /dev/fd0
```

in a terminal window, but it just comes back with an example that has the same format as the command I typed. I have tried several different combinations, but all to no avail.  
**Keith Stuart**

**A** Fortunately, the Linux kernel has a build option for a boot disc. Rather than doing make zlmage or make zliio, use make zdisk and it writes the kernel to the disc in /dev/fd0. It's a good idea to build the kernel with everything compiled in, rather than as modules, so you don't need to rely on the state of the disc to enable features you might need for recovery. The disc doesn't need to be formatted, but you may want to use mkfs -t ext2 /dev/fd0 before writing the kernel to it, so you can be reasonably sure it doesn't have any errors on it.

## Apache Web server

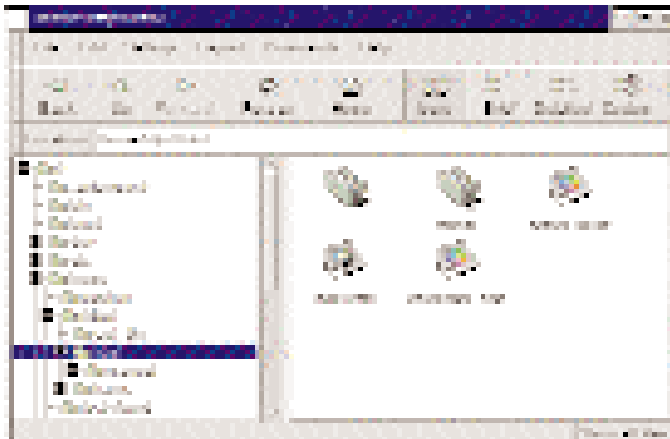
**Q** I've installed the Apache Web server for testing hand-written Perl scripts on my standalone machine, before they are uploaded to my Web host, in the attempt to save online time.

The default configuration in the httpd.conf file says that CGI programs can be run in /home/httpd/cgi-bin. I want to maintain this, but at the same time allow users to run cgi-scripts from anywhere in their home directory. I also want to make the most of the user feature of Apache so that users' home



↑ The best time to make a boot floppy is during the first system installation run.





↑ Giving users a public\_html directory and then configuring Apache appropriately, allows all of your users to have a piece of personal Web space on your server.

directories can be accessed by `http://127.0.0.1/~user`. What do I have to change in `httpd.conf`?  
**Jon Wakeham**

**A** The `-user` feature is enabled with the entry:

```
UserDir public_html
```

in `httpd.conf`. If you put it in the global area of the `httpd.conf` file, all virtualhosts will use the same user directory, `~/public_html`, so you may want to only enable it on, say, `users.domain.com` or similar. CGIs are enabled within either a `Directory` or `Location` section of the `httpd.conf`, so you might use:

```
<Directory
"/home/*/public_html/">
    Options Indexes
    FollowSymLinks ExecCGI
    AllowOverride All
    Order allow, deny
    Allow from all
</Directory>
```

Which will allow users to put their CGIs anywhere within `public_html` and have them execute with `http://127.0.0.1/~username/foo.cgi` although, you'll need to make sure that it will execute files ending in the `.cgi` extension (or indeed, `.pl`, `.sh`, and so on) with an entry

```
AddHandler cgi-script .cgi
```

in the global section of `httpd.conf`, so it applies to all virtual hosts and all directories.

## RAM trouble

**Q** I have a problem with the RAM in my PC. The problem that I have is that only 16MB of RAM is recognised. (I have 128MB). I have entered different numbers in the RAM size field during the installation but it reverts to 16MB. Can you suggest what is wrong as the OS is continually swapping out memory making it impossible to use.  
**Rob Debenham**

**A** Many BIOSes have an option to have a memory hole at 16Mb of RAM.

Turning off this feature should enable Linux to correctly detect the correct amount of memory on your system, so you shouldn't need to specify it in `/etc/lilo.conf`.

Usually you press [F1] or Delete just after the POST to enter the BIOS configuration utility, although it differs depending which BIOS your motherboard uses.

## Filter SYN packets

**Q** I have been using `ipchains` to attempt to create a firewall. Here is the script so far:

```
echo 1 >
/proc/sys/net/ipv4/
ip_forward
/sbin/ipchains -F input
/sbin/ipchains -A input
-i eth0 -s 192.168.1.0/24 -
d 192.168.1.0/24 -j
ACCEPT
/sbin/ipchains -A forward -
s 192.168.1.0/24 -j MASQ
/sbin/ipchains -A forward -
d 192.168.1.0/24 -j ACCEPT
/sbin/ifup ppp0
```

However this is not very secure. I want to stop people being able to connect to the machine, but when I use the SYN stuff in Linux Format, the `ip forwarding` no longer works.  
**Alex Hughes**

**A** Most likely you're blocking all SYN packets, including ones which are from your own network, rather than those which are from the Internet. The simplest way to filter SYN

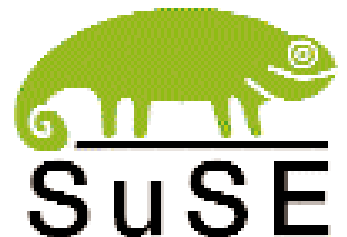
packets which have come from the Internet is:

```
ipchains -A input -i ppp0 -
y -j DENY
```

assuming you connect to the internet via a PPP dial-up.

## Upgrading SuSE

**Q** I have installed SuSE 6.2, which doesn't really like my ATI Xpert2000 card. I could upgrade to SuSE 6.4, but that would incur some charges from them. Am I allowed to download an updated version? If I am legally allowed to just download an upgrade to 6.4, how do I go about updating your installation? Will the update install/run okay from a mounted FAT partition, or does it need transferring to / or Boot mounts?  
**Richard Bickley**



**A** First, yes, you're allowed to just go to SuSE's ftp server (or preferably a mirror, such as `download.sourceforge.net`) and grab all of the 6.4 release. You won't be entitled to any support, so you'll be on your own. As far as upgrading goes, as long as the filesystem structure is the same as on the FTP server and that Linux can read the partition it's stored on, you just need to boot off the new boot floppy, using the image from the ftp server, and tell it to upgrade from a particular drive.

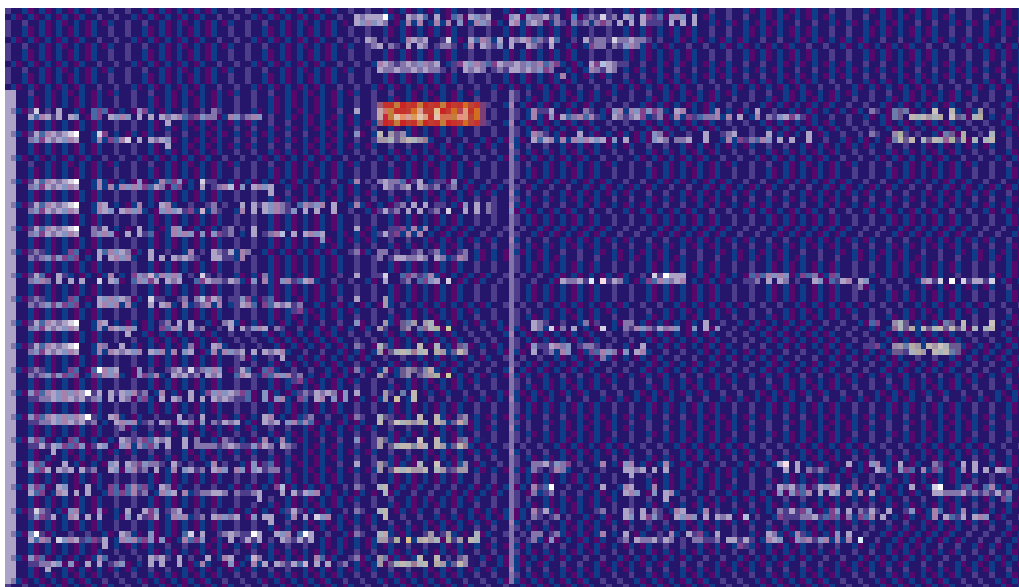
A far simpler, and less time-consuming option, would be to get a copy of the SuSE 6.4 distribution on CD which is around £2.50 and package and postage from **www.linux-emporium.co.uk**, and just install it, or upgrade, from there. **PCP**



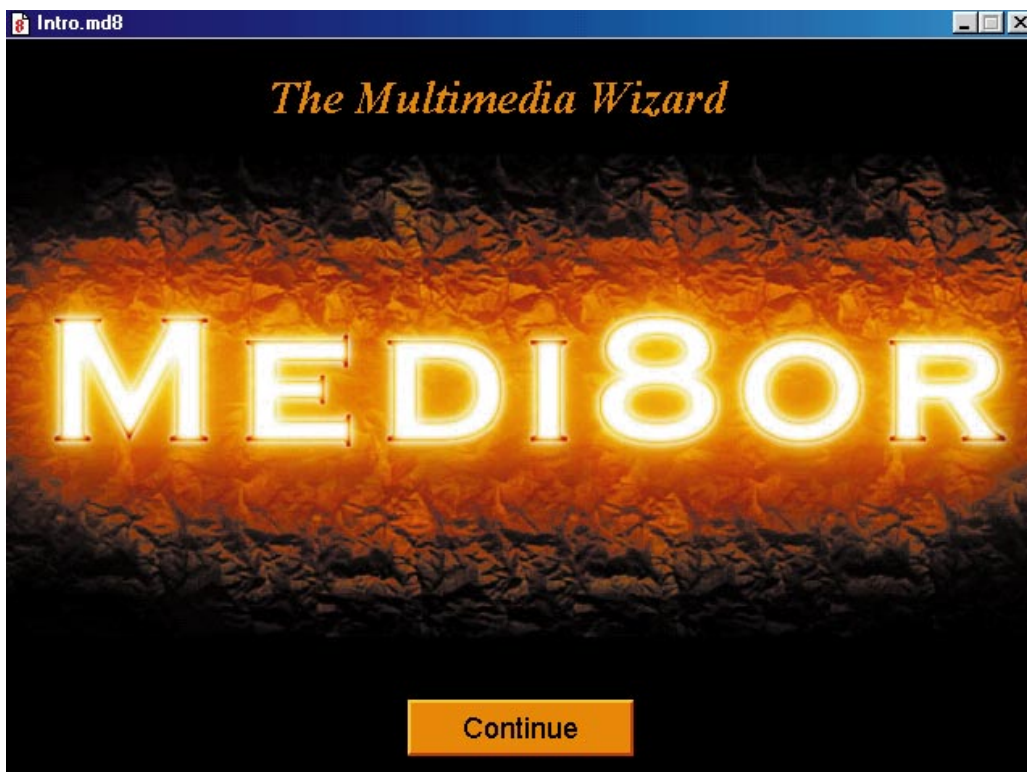
**Dave Coulson**  
dcoulson@pcpmag.co.uk

## We can help!

→ Got a Linux problem? We can't answer questions privately but we're pleased to answer your questions through these pages.  
→ E-mail your questions to: Linux Q&A at `dcoulson@pcpmag.co.uk` and we'll try to help. Alternatively, send them to Linux Q&A, PC Plus, 30 Monmouth Street, Bath BA2 3BW.



↑ There's a hole in your RAM, dear Liza – but there shouldn't be, so disable it.



↑ Mediator is a simple-to-use multimedia authoring tool that packs a lot of punch!

## Mediator: **PART ONE**



# Learning Mediator 4

**Mat Broomfield** shows you how to create eye-catching multimedia in minutes

### → It's all in the planning

**Don't risk wasting time further down the road**

The greatest effort in the creation of a multimedia project is spent planning: particularly preparing the images, sounds, videos and music that will be part of your production. Don't skimp when it comes to this – rushed projects look amateur, but if you take the time to select and prepare your media properly, then you can create productions that look as polished as any professional application.

**L**ast month we gave you the exciting multimedia program Mediator. Now that you've had some time to peruse it, I thought that I'd show you just how easily it is to create a professional and eye-catching multimedia presentation with Mediator.

Unlike multimedia authoring tools such as Flash or Director, you don't need to learn how to program in order to use Mediator – virtually everything can be done using the mouse for drag-and-drop simplicity.

You can use the program for something as simple as a slideshow to show your holiday snaps, or perhaps to accompany a presentation. If you're more ambitious or demanding, you can include audio, video and object animation. Animation may simply be an on/off type event or you can

use the time-line to create complicated and stunning sequences. To help you, Mediator offers tweening, time-smoothing and a number of other animation tools that will have you wondering why other programs make it so difficult. You can produce scrolling text, resizable objects and rescalable windows. You can create rollover effects, menus and buttons. You can access media stored on disk, or on a remote system via a network or even the Internet.

All in all, we think you'll agree that Mediator is a very impressive program and, like an iceberg, 90 per cent of it is hidden beneath the surface. You won't have to dig far, but you'll be glad you did when you see just how versatile it manages to be with such a seemingly small range of tools to master.

We hope that you'll enjoy using the program as much as we enjoy bringing it to you...

In this tutorial, I'll show you how to create a multimedia brochure for a holiday company, but you could easily adapt this as a means of sharing your family holiday over the Web. During this tutorial, I'll be covering most of the basic principles that you'll use in any project, so by the end of it you'll know pretty much everything about making multimedia with Mediator.

Before we start, it helps if you understand a little about the way that the program works. If you're familiar with Web page design, most of it won't really be that different, except, of course, that there's no tiresome HTML or Java to worry about!

Each Mediator project consists of pages. A page may hold text, graphics, video or animation. Sounds or music can be played when a page is displayed, at a timed moment or as a response to user interaction. You can specify when and how to move between pages, and the process can be fully automatic, or controlled by a user event such as a mouse click.

Every item on a page is called an object, and objects can be passive (non-interactive), such as with a background picture, or they can be active, such as a button or menu that responds to user activity.

All active objects have events and actions associated with them. An event is the condition under which it becomes active – on a mouse click or rollover for example. You can probably figure out what an action is: it's the action that the program performs when a specified event occurs.

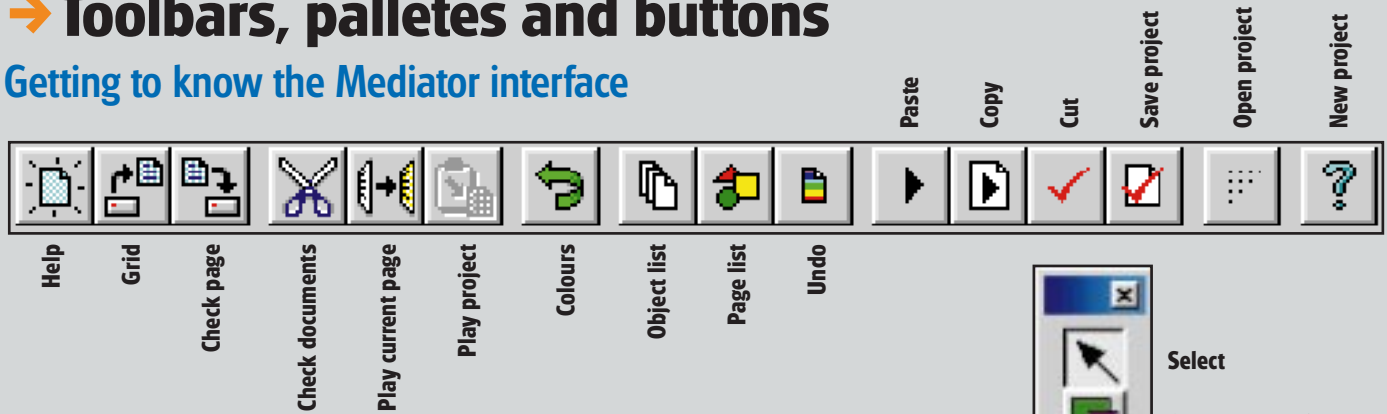
Once you've created your multimedia project, you can export it in a number of formats depending upon the intended distribution method. The easiest is by CD, in which case you can fit a 650MB project on a standard disc. Even if you distribute by floppy disk, the program will automatically split your project and spread it across as many disks as are needed.

If you plan to make your project available via the Internet, posting it is easy enough, but, of course, you'll want to pay careful attention to the size of the media you use in your project. There's no point including a 100MB video clip unless you don't care that everyone will ignore it!

As you'll soon discover, Mediator is so blissfully straightforward and simple to use, that even the most computer-illiterate user will be producing professional-looking projects in no time.

## → Toolbars, palletes and buttons

### Getting to know the Mediator interface



#### The Toolbar

You'll use the main toolbar for familiar operations such as cut, copy and paste. You can also save and open projects, manage page behaviours, and adjust colour profiles from here.

#### The Tools Palette

This holds the various objects that you can drop on to a Mediator page. Once you've dropped a component on to a page, you can then tweak numerous properties using its individual properties option.

### Ready to begin

The first thing we need to do is create a new project. As soon as the program loads, you'll see that it creates a blank document for you called Document 1 — Page 1. If you've already been experimenting with the program, click the New icon on the Standard toolbar to create a new document.

Now we're going to import a picture to use as a background for our title page. To do that, you first need to create a picture frame on the page. Select Picture from the Toolbox at the edge of the window. If the Toolbox is not visible, go to the View menu at the top of the screen and select Toolbox to activate it.

When you've selected the Picture icon, go to the document window and the cursor changes into a cross. Hold down the left mouse button and drag out a rectangle on the page, then release the mouse button. As you do so, the file requester appears. If you've downloaded the files from our Web site or are using the ones supplied

with issue 170, choose the file Background1.jpg.

Move the cursor anywhere inside the image and drag it up to the top-left corner of the page. Now using the resizing handles on the edges and corners of the picture box, stretch it until the box fills the whole page. If you're using a picture that's exactly the right size for your page, right-click then select Adjust Size and it will automatically be sized and positioned.

### Interactive Components

Now I'm going to add a button to the title screen so that people can progress to the next page. Select Button from the Toolbox, then go to the title page and drag out a button a couple of inches long and half an inch high about a third of the way up the screen. Because the button doesn't automatically scale to fit any text you place on it, and you won't be able to see any text that's too big or long for the button, it's easier to create an oversized button and resize it once you're happy with the text.

Double-click on the button and the text will move to the top of the button and a cursor appears ready for you to edit the text. Delete the existing text then type Continue. To submit the modified text, click the cursor anywhere off the button.

By default, the button is Windows grey with black text but that's rather dull, so right-click on the button and select Properties. Click the Button tab then click in the small grey square under the word Face. Now select a slate blue colour. Go to the Text tab and change the text colour to white.

Once you've put the text on the button, right click on it and select Adjust Size to create the perfect sized button.

### Sometimes words speak

Let's add some title text to the page. Select the Text icon from the Toolbox. Drag a box out about an inch high and two-thirds the width of the page. If you simply click rather than dragging, you'll end up with a small square text box, but again, as

the box doesn't auto-resize to accommodate more text, it's better to over-estimate your requirements.

As soon as the box has been created, Mediator places a text cursor ready for you, so type PCP Holidays. Unfortunately, the program is extremely convoluted when it comes to formatting text, so instead of a single easy menu, you have to repeatedly access different menus. With the cursor still in the text box, highlight all of the text by dragging along it. Now right-click and select Adjustment (justification), and specify Centre. Now right-click again and choose Font. Increase the font size to at least 32, and choose a decorative typeface and colour. When you've finished, click OK then click outside the text window to apply the changes.

Drag the text window to approximately the correct vertical position on the page (somewhere in the sky, at the top). Finally, go to the Arrange menu, choose Alignment and in the Horizontal section click Centre. **PCP**



↑ This is our basic page in Mediator. Here you can see that we have added an image as a background.



↑ We've added a button component and selected an interesting colour scheme as opposed to grey and black.



↑ Here we've added some title text and formatted it using Mediators long-winded formatting tools.



## → Events

**Events are the conditions that must be met in order to trigger an action**

### Move Into

This condition is satisfied whenever the cursor touches or passes over the specified object.

### Move Out Of

This condition is satisfied whenever the cursor moves off the specified object.

### Mouse Click

This condition is satisfied after the user clicks the left mouse button on the specified object.

### Mouse Down

This condition is satisfied when the user presses the left mouse button on the specified object. If an action has been defined for this event, the cursor changes into a pointing finger as long as it is over the object.

### Mouse Up

This condition is satisfied when the mouse is released over an object containing the Mouse Down event.

### Show Object

This condition is satisfied when an object is shown. It only occurs once when a page is shown, rather than for every object on the page.

### Hide Object

This condition is satisfied when an object is hidden.

### Page Ready

This condition is satisfied when a new page is displayed.

### Start

This condition is satisfied when you use the Start action to start an object or when a new page is displayed. It also occurs when a video or resource starts or an input is entered.

### Stop

This condition is satisfied when you use the Stop action to stop an object or when you leave a page and a new one is displayed. It also occurs when a video or resource stops or an input is entered.

### Right Click

This condition is satisfied after the right mouse button is clicked over an object (pressed and released – the equivalent of the right down and right up events).

### Right Down

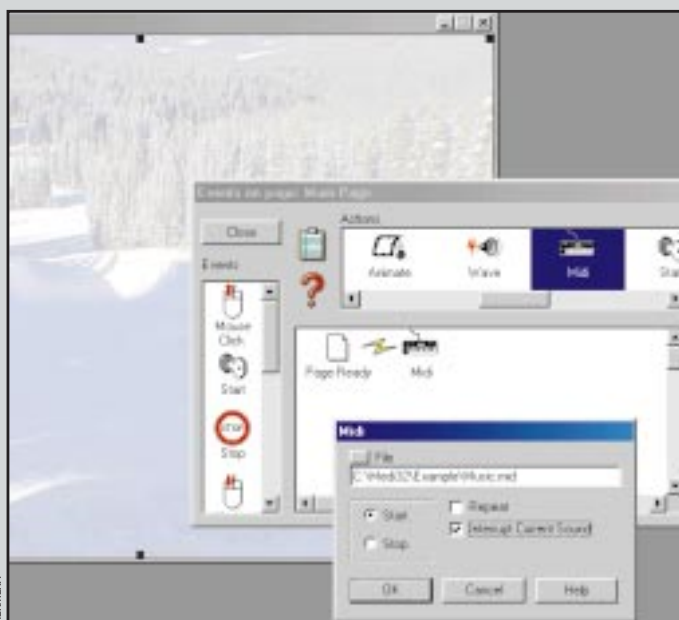
This condition is satisfied when the right mouse button is pressed over an object.

### Right Up

This condition is satisfied when the right mouse button is released over an object.

## → Building it

We're going to create an application that showcases a series of holiday scenes. Roll out the family snaps!



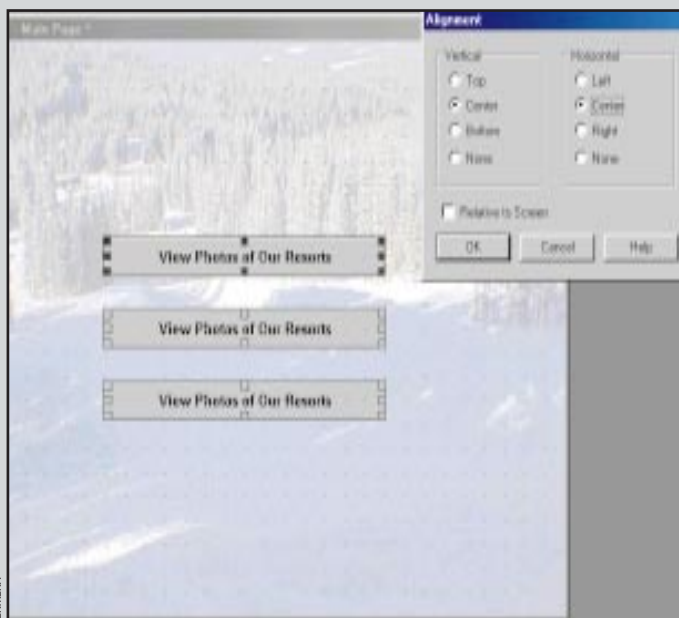
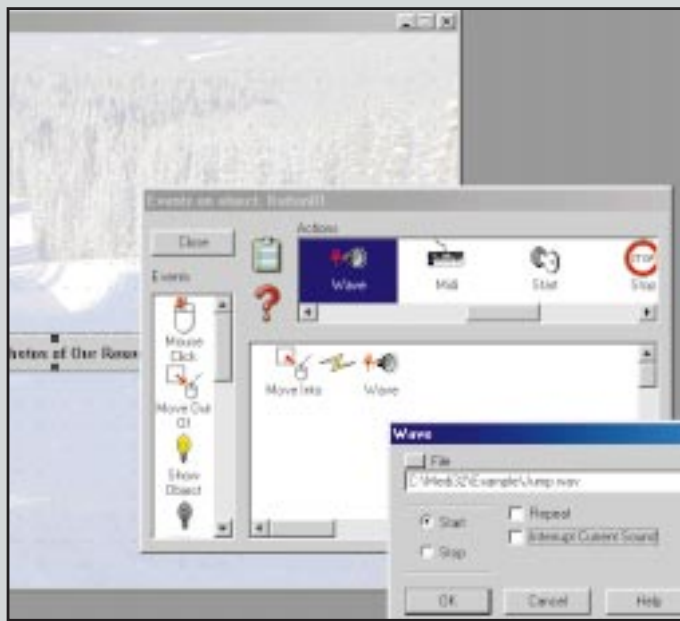
**1** Let's add some music to the project. Go to the Page/Events menu at the top of the screen. This is where you select events pertaining to the entire page rather than individual objects on it. Drag the Page Ready icon from the Events List on the left then drag the MIDI action from the Actions List at the top of the requester. Select the file Music.MID, then click OK and Close. The tune will play as your users browse the pages, but will end after completing the tune. We're going to create the second page. The first was our splash screen, but this will be the main one: the equivalent of our home page.

Click the List button in the Standard Toolbar to open the page list. For now, the only entry is Page 1. Click the second icon to rename the page, and call it Title. Now click the first icon to create a new page and call that Main page. When you click OK, the new page is automatically created and selected. Create a full-screen picture box, as we explained earlier in the introduction, and load the file background2.jpg into it.

**2** Now create a button labelled View Photos of Our Resorts. Right-click the button and select Events. Choose the Mouse Into event and the Wave action. Select the file Jump.wav. Deselect the Interrupt current sound option.

Right-click on the button again, and select Adjust Size then Edit/Copy. Now move off the button, right-click and select Edit/Paste twice. It's easier to create copies of the largest button, rather than manually resizing each and every one.

Drag the three buttons, one after the other, and position them so that they are in a line above each other. Holding down the shift key, select all three of the buttons. Go to the Arrange menu at the top of the screen and select Alignment, then check Center in both the vertical and horizontal axes. Check the Relative to Screen option then click OK. Click off the group then right-click the first and select Edit/Object and change the button text to About Our Resorts. Change the text on the third button to View Videos.



**3** Open the Page List and select the Title Page. Right click on the Continue button and select Events. The Events editor appears. This is where you set the condition under which the button object reacts. It's straightforward because all you want it to do is go to the Main Page when someone clicks on it.

Drag the Mouse Click icon from the Events List on the left into the Script pane in the middle of the requester. Now drag the Go to Page Action from the Actions list at the top of the requester into the Script pane, and place it after the Mouse Click event. A further requester will open. Click the small grey box next to the words Go To Page and select Main Page. Click OK to accept, then Close to shut the Events requester.

To test the new button, click the Run Page icon in the Standard Toolbar. If you want to test both pages, click the Run Document button instead. Press Escape to exit the test mode.

## → Actions

**Actions are what Mediator does in response to an event**

### Animate

This action enables you to define a path for the selected object to move along.

### Cursor

This action enables you to change the appearance of the cursor by replacing it with a new one loaded from a file.

### End

This action enables the user to exit from the Mediator project he or she is currently viewing.

### Go to Page

This enables you to specify the name of a page to go to.

### Hide

This action enables you to hide a currently visible object.

### Media Seek

This action enables you to commence playback of a video file from a specified time or frame number.

### Midi

This action enables you to play a MIDI file.

### Move Cursor

This action enables you to move the cursor to the specified location.

### Show

This action enables you to reveal an object that is currently hidden.

### Start

This action enables you to commence playback of a multimedia file.

### Stop

This action enables you to cease playback of a multimedia file.

### Timeline

This action enables you to activate the timeline, which is used to trigger further actions according to their position along the timeline.

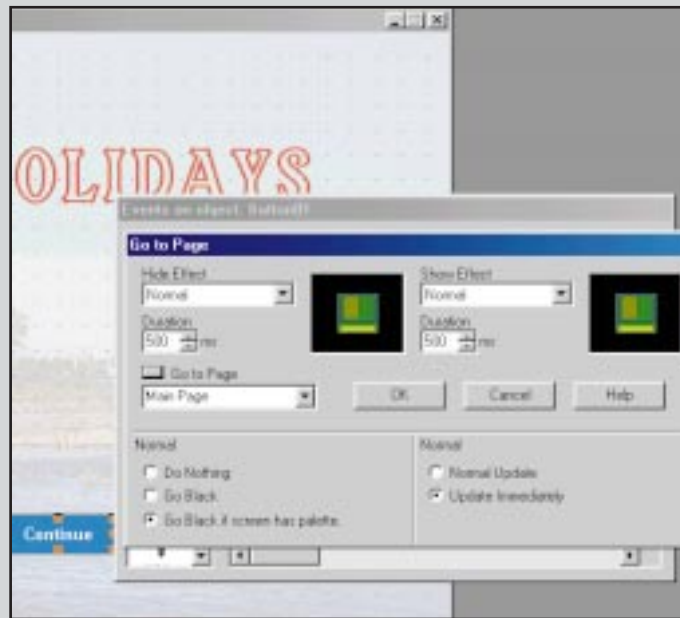
### Wave

This action enables you to play a wave (sound sample).

**4** Create a new page and call it Photo Index. Make a text box containing the words, Centre it near the top of the page.

Now create four identical rectangular buttons. Right-click on the first button and select Properties, then click on the Picture tab. Click the small grey box next to the Path requester and select the file Summer.jpg. Click the Miscellaneous tab at the bottom of the requester and deselect the Maintain Aspect Ratio option. Repeat the process for the other buttons, substituting the files Winter.jpg, Spring.jpg and Autumn.jpg.

Go to the Page List and create four pages. Name them Summer, Winter, Spring, Autumn. Go to each page in turn and add the page-sized image of the same name. Open the Summer page and create a button labelled Return. Create an action for the button so that on a mouse click it takes you back to the Photo Index page. Now copy the button and go to each of the other three picture pages and paste it in place. The button will perform the same operation on every page.



**5** In this stage we're adding pop-up tool tips to the buttons. First of all, go to the Photo Index page and position each of the four buttons a few grid squares apart in both the horizontal and vertical axes. Now create a text box beneath the first photo and add some descriptive text such as Sailing. Choose a simple font such as Arial, and go for a small size. Right-click the text box and deselect the Show Object option. Double-click the button and delete the text. Now assign a new event to the Photo button. Select the Move Into option and the Show Action. In the requester that appears, click the Object box and select the Summer object.

Staying in the Events editor, add a second action; Mouse Out Of. Drop it on the Script pane beneath the first pair of icons. Use the Hide action.

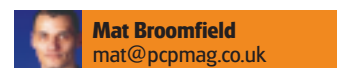
Finally, add a third Event and Action to give the button an actual function. Drag the Mouse Click icon and add the action Go To Page. Specify the Summer page you created earlier. Repeat the process for each of the other three buttons.



**6** Create a button and label it Return to Main Menu. Position it below the photo thumbnails and centre it horizontally. Copy the button then paste the copy back into the same page. The copy will be on top of the original. Right-click the copy and change the text colour to yellow. Close the Properties requester and right-click the object again, then deselect the Show Object option to hide the top copy with the yellow text.

Now create a rectangle that covers the buttons and is exactly the same size. Set the background colour to transparent, and the frame should be deselected. You've created an invisible rectangle.

Close the Properties requester and open the rectangle's Events requester. Create a Move Into Event that makes the Yellow button visible. Beneath that, create a Move Out Of event that hides it again when the cursor is not over the rectangle. Finally, create a Mouse Click event that returns you to the main page using the Go To action. Even though the rectangle is transparent, it's visible to Mediator.



**Mat Broomfield**  
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**PCPlus**

**NEXT MONTH**

Exploring the more advanced features in Mediator 4.0

## Lotus Smartsuite: PART ONE

# Building charts that get your message across

Creating great looking charts which jump off the page is simple with Lotus 1-2-3. Helen Bradley shows you how it's done

**L**ike a picture, a chart can say a thousand words. However, when that chart is computer generated, it's as easy to create nonsense as it is to be informative. We'll spend this month's tutorial discovering some of the features Lotus Smartsuite offers to help users present complex information simply and coherently.

Lotus 1-2-3 is one of the spreadsheet programs which enables you to replace the column

or bar in a chart with a picture. So, if you can find or create a suitable graphic to match the purpose of your chart, this is a way to add extra pizzazz to it.

### Say it with pictures

A chart prepared in this format is suitable for simple data where you have only a few categories to display and where the graphic can be presented in a reasonable size.

When you have readers who find maths overwhelming, a chart

like this is friendly and will tempt them to explore its meaning further. To create a picture chart, first create a standard bar or column chart. Make this a simple chart and avoid using any of the 3D options as you can't add images to these.

Open a graphics package or your clip-art collection and find a suitable image to use.

You will want one which isn't too complex and you won't want it to have too much of a border around it. If necessary, recolour or crop the

image using your graphics software.

When the image is ready to use, copy it on to the Windows Clipboard by selecting it and choosing Edit, Copy. Now you can return to Lotus 1-2-3 and select the data series to replace with a graphic. Right-click and choose Series Properties and then choose the Pictures tab. Click the Paste Picture button to paste the picture on to the chart.

You can fine tune how the image appears by choosing the Preserver aspect ratio button.

You can extend this concept and create a chart which has a different image for each column of data. To do this you need to create a bar or column chart where each column is coloured differently.

Create a simple bar or column chart from data in two rows (or columns) one of which contains the headings and the other the numbers. Now select the outer area of the chart, right-click and choose Chart Properties, Ranges tab. Click the Options button and select the option which isn't already chosen from the two (series by column, series by row) and click OK. Now each column will be a different colour and you can select each individually and place a different image in each using the same process as you've already used.

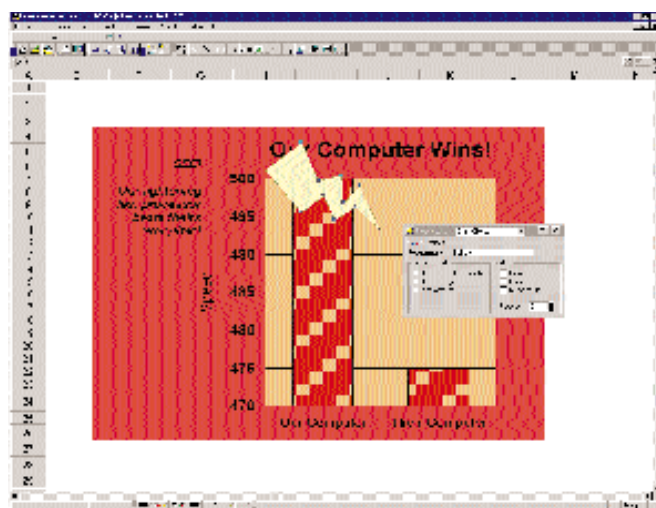
If you need to change the width of the bars in the chart, select the Plot area (the smaller inside grid), right click and choose Plot properties and then the Layout tab. Here you can alter the Gap % setting to increase (or decrease) the gap between bars which, in turn, alters the width of a bar.

## → Adding drawing objects to your chart

When you need to draw attention to part of your chart, Lotus 1-2-3's drawing objects will do the job

Lotus 1-2-3 has a number of drawing objects you can use to draw attention to parts of a chart. Unlike images these don't have rectangular backgrounds so they can be dragged around the screen, placed on a chart and coloured to suit your needs.

To see what is available, choose Create, Drawing – the menu shows the tools you can use, such as Rectangle, Arc, Ellipse, Freehand, Polyline, Polygon and so on. The flash in this chart was created using the Polygon tool – simply select it and use your mouse to click



↑ Graphics in charts will help ensure you get your message across.

everywhere one of the polygon points will be. When you're done, double click on the first point to close the shape.

You can then fill the polygon or change the line style by selecting it, right-clicking and choosing Drawing properties and then the Color, pattern and line style tab.

If you need to change the size of the polygon, select it and use the sizing handles to adjust its size. To alter its shape, from the Drawing properties dialog, choose Basics and enable the Show points checkbox. Now drag on a point to move it. You can also set a value to rotate the drawing image.

### Lotus 1-2-3 97 charting tips

Plotting non contiguous data: To plot data that doesn't appear in a continuous block, select the first series and hold the Control key as you select the next series. Repeat and select all the required series and create your chart as usual.

Plotting using a second series: → To plot a series against a second axis, create your chart as a line, or vertical bar chart.

→ Click on the series to plot against the second axis to select it. If you have difficulty doing this (because you can't see it) select any visible series, right-click and choose Series Properties, Options tab.

→ From the drop-down list choose the series to alter and enable the Plot against second Y-axis checkbox and choose the type of plot (Line, Area or Bar) from the Mixed type drop-down list.

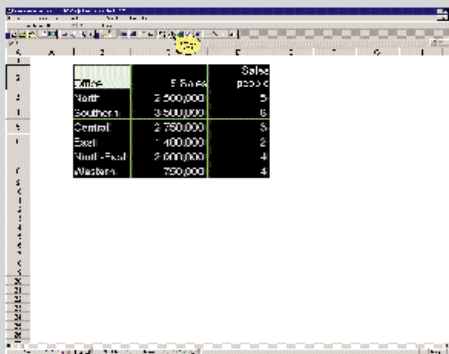
### Plotting scattered data

When your data is scattered throughout a worksheet (or a



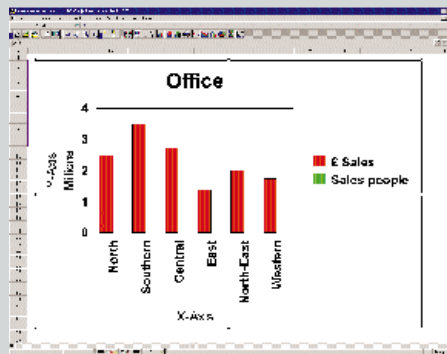
## Putting the 'Art' into Chart

Follow this example to learn some techniques for adapting Lotus 1-2-3 charts to a newer and more updated style

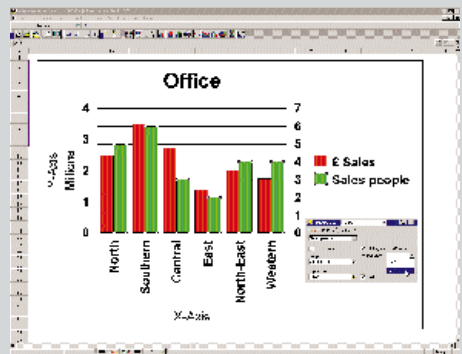


Office	£ Sales	Sales people
North	2,500,000	5
Southern	3,500,000	6
Central	2,750,000	5
East	1,400,000	2
North-East	2,000,000	4
Western	750,000	4

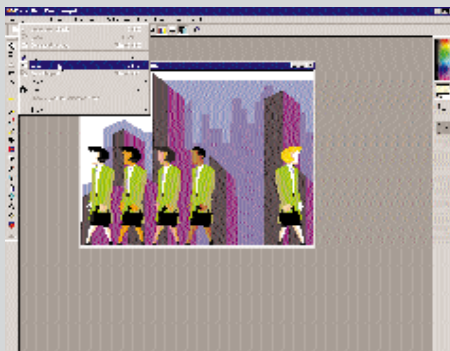
**1** To create the chart you'll need some data so enter this into your worksheet. Then select it and click the Create a chart icon on your Smarticon bar.



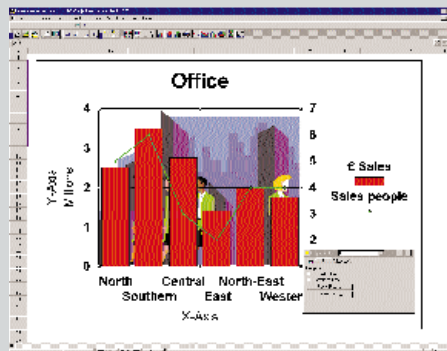
**2** Create the chart by clicking and dragging a rectangle on your worksheet. Using the sizing handles, stretch the chart to a good size on the sheet.



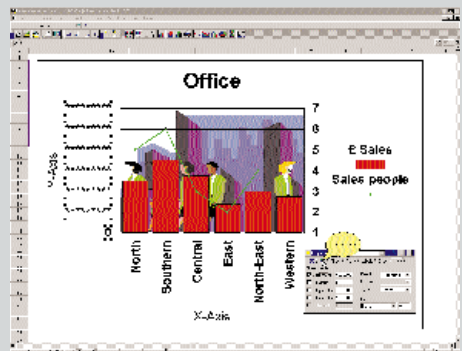
**3** To create the second X-axis, click the Sales People item in the Legend, right-click and choose Series Properties. Choose the Options tab and enable the Plot against 2nd Y-axis checkbox and choose Line from the drop-down list.



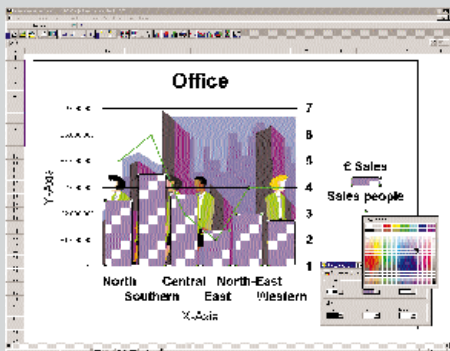
**4** In a graphics program (or some other program) locate an image to use as the backdrop to this chart. Choose the image and choose Edit, Copy to copy it to the Windows clipboard.



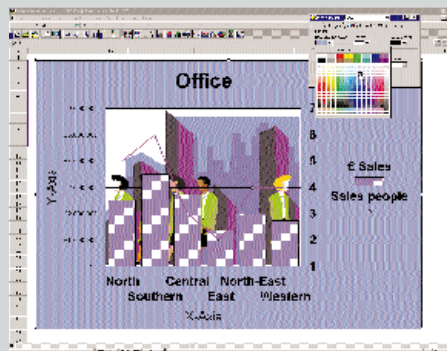
**5** Click the outside of the grid on the chart to select the Plot area, right-click and choose Plot properties, then the Options tab. Click the Paste Picture button to paste the image into place.



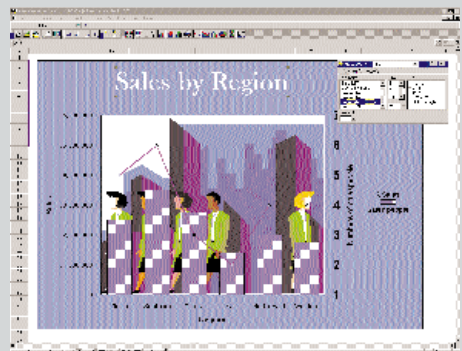
**6** So you can see more of the image, alter the scale of the axes. Select the left Y axis, right click and choose Y-axis properties, Scale tab. Select the Maximum checkbox and set it to 6,000,000. Set the Units to None, choose the Number format tab and format the numbers more attractively and then the Fonts tab to choose a smaller font size.



**7** Select one of the bars, right-click and choose Series Properties. Choose the Color, pattern and line style tab and change the colour of the bar to something which works better with your image. Repeat for the second series.



**8** To add a background colour to your chart, select the outer edge, right-click and choose Chart Properties. Choose the Color, pattern, line style tab and choose a Background Color for your chart.



**9** Finish off the chart by formatting the text labels for the axes and the Legend, alter the chart title and create titles for the X and Y axes.

number of worksheets), consolidate it into one worksheet and chart it from here. Do this by using cell references to create the consolidated data area, for example, to reference the data in cell E6, simply type +E6 into a cell. To reference the data in cell H8 of sheet B use the formula +B:H8.

### Black and white printing?

When you print a coloured chart on a monochrome printer you may need to change the colours to get

an acceptable result. Select the series to alter, right-click and choose Series Properties and then the Colors, patterns and line style tab. Change the Pattern, Pattern color and Background colours to get a result which will print clearly.

Sticking to Black and White and one or two shades of grey will usually be sufficient.

### Connecting points

The default look for an XY scatter chart is for it to be a series of

markers which aren't connected in any way. If you need to connect the points, for example for displaying the change in share prices over time, select a marker, right-click and choose Series Properties, and then the Color, pattern and line style tab. Enable the Connect points checkbox and then set the line colour and style. **PCP**

→ Find a covermount of the full version of Lotus SmartSuite on **PC Plus** issue 164.



**PCPlus**

**NEXT MONTH**

Helen continues her exploration of the features in Lotus SmartSuite

# JavaScript techniques: PART THREE

# Handling cookies

Cookies are powerful, but tricky to use – unless you've got our cookie-handling libraries. Paul Stephens explains all



**C**ookies do something that browsers aren't supposed to be able to do, namely read and write data to a user's local hard disk. The cookie system first appeared in Navigator 2.0 and IE 3.0, and its limited programming interface and storage capacity haven't changed since.

Nevertheless, cookies remain a popular authoring feature, because they're cross-browser compatible (unlike IE5's XML-based Persistency), and their tightly-controlled disk handling doesn't create the security worries which have blighted technologies such as Microsoft's

ActiveX. Cookies are useful because they let Web pages 'remember' data from previous browser sessions.

For example, you might store a user's preferences, such as background colours or frames/no frames working, in a cookie, then use the data to configure your pages on their next visit (without cookies, the only way to do this would be to maintain a server-side database of all users and their preferences). The browser keeps cookies from different web sites strictly segregated, so there's no danger of your page accidentally reading data created by a different

site, and no way your pages can corrupt other sites' cookies. You don't need any server-side programming support, as cookies can be handled by client-side JavaScript (and VBScript) code.

## The basic recipe

A cookie is basically a text string, in the format name=value, for example "magname=PC Plus". When you create a cookie you can also give it an expiry date (if you don't, it's deleted at the end of the browsing session), and a path, which makes it accessible to pages from other subdirectories on your Web server (see **Cookie Scope** for details). As well as reading a cookie, you can overwrite it with new data. A domain (such as **www.pcplus.co.uk**) can create a maximum of 30 different cookies on a user's PC, each up to 4K bytes long. There's an overall limit of 300 cookies per PC.

JavaScript's cookie-handling interface is spartan, and slightly confusing. There are no built-in methods, just a single property, document.cookie, which behaves differently depending on whether you're reading or updating it. When you read from it, like this:

```
var cookieString =
document.cookie
```

it returns all the cookies available to that page, separated by semi-colons. Here's an example:

```
magname=PC
Plus;issue=169;article=Web
Masterclass
```

This string contains three cookies, named magname, issue and article. You have to provide your own routines to extract individual cookies from the string, (but don't worry, there are functions to do this on the **SuperDisc**). The expiry dates and paths of the cookies aren't returned.

You create or overwrite cookies by updating document.cookie:

```
document.cookie =
cookieData
```

However this isn't quite as simple, or consistent, as it looks.

Instead of updating document.cookie with multiple name=value pairs (like the ones returned when you read from it), you supply a single pair, with optional expiry date and path parameters. This looks something like this:

```
document.cookie =
"issue=170;expires=Tue, 12-
Dec-00 12:00:00 GMT;path=/"
```

This statement writes just the issue cookie back to disk, leaving the other cookies unchanged. The date must be in the long-winded GMT format, but this is easy to create using the Date() object's toGMTString() method. For example, to set an expiry date of 5th November 2000, you can say:

```
tdate = new Date(2000, 10,
5)
document.cookie =
"issue=170;expires="+
tdate.toGMTString()+";path=/"
```

(Note that when specifying a value for a new Date() object, months start from zero, so November is month 10, but days start from one.)

## A helping hand

Cookie handling can be tricky, but a few pre-written JavaScript functions can make life much easier. We've put two sets of functions on this month's **SuperDisc** – the first is the classic set from issue 129's **Web Workshop**, while the second is a new object-oriented set which lets you create multi-element, composite cookies. Details of how to incorporate them in your pages are on the **SuperDisc** pages.

The classic functions let you retrieve a named cookie from disk (stripping it out of the document.cookie string), and write a named cookie back, optionally specifying an expiry period (in days or a specific date) plus a path. The first function, setCookie(), writes a cookie to disk. It works like this:

```
setCookie ("issue", "170",
365, "/")
```

where issue and 170 are the name and value of the cookie, 365 is the expiry period in days, and '/' is the path (you can omit the expiry and path parameters if you like). The second function, setDatedCookie() takes a date object instead of a period in days as its expiry parameter, for example:

```
tdate = new Date(2000, 10,
5)
setDatedCookie("issue",
"170", tdate, "/")
```

To read a cookie back, use getCookie(), like this:

```
var issueCookieVal =
getCookie("issue")
```

The data returned is the value part of the name=value pair (for example "170"), or null if the cookie doesn't exist. Finally, to delete a cookie, use deleteCookie(), like this:



↑ The two cookie-handling JavaScript libraries, plus documentation and sample pages, are on this month's SuperDisc.

## → Cookie scope

### Cookies like to keep themselves to themselves

Browsers take great care to keep cookie data from different domains hidden from each other, so a page from [www.pcplus.co.uk](http://www.pcplus.co.uk) can't read a cookie that was written by a page from [www.paulspages.co.uk](http://www.paulspages.co.uk). They even extend this to pages from different subdirectories within a single domain, so a page from [www.myserver.co.uk/dirA](http://www.myserver.co.uk/dirA) can't read a cookie

written by a page from [www.myserver.co.uk/dirB](http://www.myserver.co.uk/dirB). However, a page from a lower-level subdirectory can read cookies created by pages from its parent directories, so a page in [www.myserver.co.uk/dirB](http://www.myserver.co.uk/dirB) will receive cookies created from [www.myserver.co.uk](http://www.myserver.co.uk) in the value returned by reading `document.cookie`.

The subdirectory rules can get a bit confusing, but one way to simplify them is to use a `path=` parameter when writing a cookie. Adding `path=` to the new `document.cookie` value makes the browser treat the cookie as if it had been created by a page in the domain server's root directory, thus making it accessible to all pages in that domain.

```
deleteCookie("issue", "/")
```

Note that you have to specify the cookie's path, if one was used to create it.

### Composite cookies

You'll often want to store more than one data item from a page – for example a name, address lines, postcode and phone number. To minimise coding, and avoid using up those precious 30 cookies per site, you can combine multiple items into a single cookie record, then break it up again when you read it back.

To create the record string you concatenate your data items together, placing a separator character in between each one. When you read it back, you use JavaScript's `indexOf()` and `substring()` methods to split it into variables or array elements. There's no need to write this yourself though, because our second set of cookie-handling functions does it for you.

The functions define a new object class called 'cookieObject' (more on custom classes in future **Web Masterclasses**). To use a cookie, you first create a `cookieObject` to represent it, like this:

```
magCookie = new
cookieObject("magdetails",
365, "/")
```

Where `magdetails` is the cookie name, 365 is its expiry period in days, and `"/"` is its path (you can omit the last two parameters). The object exposes an array property, `fields[]`, in which you can update like this:

```
magCookie.fields[0] = "PC
Plus"
magCookie.fields[1] = "169"
magCookie.fields[2] = "Web
Masterclass"
```

Then you can use the object's

`write()` method to save the data to disk, like this:

```
magCookie.write()
```

This concatenates the object's `fields[]` array into a string, and stores it away as a single cookie.

To read the cookie back in (perhaps into a different page), you use the `cookieObject`'s `read()` method, like this:

```
magCookie.read()
```

This returns a value of true if the cookie was found, or false if it wasn't. After a successful read, the cookie object's `fields[]` array will contain the cookie's individual data items – you can check how many items there are like this:

```
if (magCookie.read()) {
    fieldcount =
magCookie.fields.length }
```

To remove a cookie from disk, you use its `remove()` method, like this:

```
magCookie.remove()
```

`CookieObject` objects expose extra properties, which let you adjust the expiry date, path and other features of a cookie object after you've created it – for details see the description pages on the **SuperDisk**.

Next month in **Web Masterclass**, we look at the business of creating custom object classes. Until then, happy authoring! **PCP**



Paul Stephens  
[www.paulspages.co.uk](http://www.paulspages.co.uk)

**PCPlus**  
**NEXT MONTH**  
We show you how to  
create custom object  
classes

## → Using cookie data

Cookies can help you tailor your Web site to the preferences of individual visitors. Here's how:

Cookies are effectively variables whose values persist across browser sessions. One use for them might be retrieving the details of an in-progress game (player name, score and so on) from disk, then continuing play. Another popular use for cookies is page customisation, for example, storing the user's name and the date of their last visit, then welcoming them back with a 'hey, it's been 16 days since we last saw you' message.

If your site uses data entry forms, you can save users from having to re-enter basic information such as name and address by storing it in a cookie first time through, then reloading it into form controls on subsequent visits (although this is hard to do in Netscape browsers – see below for details). The one golden rule of cookie usage is never to assume that a cookie will be there – cookies can disappear from users' disks for a variety of reasons, and you should always cater for missing-cookie situations.

Here's a simple example, based on our cookie-object functions, which captures a name and last-visit date, then uses it to customise a site's opening page. The inline script is embedded near the top of the page's `<body>` section:

```
<script>
userCookie = new cookieObject("userdata",365)
if (userCookie.found) { document.write('<p>Hi
there '+userCookie.fields[0]+'
you last visited us on '+ userCookie.fields[1]+'</p> ')
} else {

    userCookie.fields[0] = prompt("Please type your
name here: ")
    document.write('Welcome, '+ userCookie.fields[0]+'!')
}
vdate = new Date()
userCookie.fields[1] =vdate.toGMTString()
userCookie.write()
</script>
```

Using form controls to capture cookie data is complicated by limitations in current (pre-Mozilla) Netscape browsers, which only let you address a form's controls (text boxes, checkboxes and so on) from event-handlers in the form itself. The easiest solution is to have a pushbutton whose onclick handler collects the required data and passes it to a cookie-update function, like this:

```
<input type="button"
value="Save Details"
onclick="updateCookie(name.value, postcode.value)">
```

where `'name.value'` and `'postcode.value'` are properties of text controls on the form (see the **SuperDisk** for a sample page which does this).

Unfortunately, automatic transfer of data from cookies to form controls is very difficult in Netscape browsers, since there are no suitable events which can be trapped to give access to a form's controls when the page first loads. The only answer is to generate the form via a series of `document.write()` statements which incorporate the cookie data. Here's an example, based on the cookie object functions described above:

```
document.write("<input type='text'
value='"+formCookie.field[ 0]+'>")
```

However this technique quickly becomes complicated, especially with controls such as selection lists and radio buttons.

In IE 4.0 or later, you can address a form's controls directly at any time. This means you can generate an empty form, then update it once the page and cookie have loaded, like this:

```
userForm.nameControl.value = formCookie.fields[0]
```



# FRONTDESK

→ Latest headlines posted daily at [www.pcplus.co.uk](http://www.pcplus.co.uk)



## Business users need new licences

→ **Microsoft's licences don't allow pre-installed Windows to be replaced**

In a report with the rather candid title of 'Microsoft Uses Windows License Compliance Confusion to Drive New Revenue', analysts at Gartner ([www.gartner.com](http://www.gartner.com)) have suggested that many business users are having to pay for two Windows licences. The problem comes about on new PCs that arrive with Windows pre-installed.

Many IT support departments wipe such machines and then reinstall Windows to their own configuration. Windows NT can require hundreds of network and security changes before being acceptable to corporate network managers. And one popular tool used for duplicating locally configured copies of Windows is Norton's Ghost.

Gartner believes that up to 60 per cent of businesses with more than 500 users reconfigure Windows in this way. When a new PC includes a pre-installed copy of Windows, it will come with a Windows Original Equipment Manufacturer (OEM) End User License Agreement (EULA). This is an agreement between the OEM (the PC vendor) and

the customer. Crucially, it is not an agreement with Microsoft. If the OEM copy of the operating system is to be replaced with another copy, an additional licence is required – from a confusing choice of Upgrade Advantage, Version Upgrade Program, Product Upgrade Program or Competitive Upgrade Program.

The media used for re-installation has traditionally come from Microsoft's Select programme – one of the ways volume users can cut their licensing costs. Gartner says this practice used to be acceptable to Microsoft – and it has e-mails to prove it. Now, it says a second Windows licence will be required – even if the same version of Windows is being installed. According to Gartner, Microsoft sales staff have been pressurising some business users into purchasing additional operating system licences. And they have been using an internal question and answer document on licensing as the authority.

Speaking to **PC Plus**, Neil Laver, Windows Desktop Product Manager at Microsoft said: "We offer a range of volume licences to PC OEMs and



Neil Laver

**"We believe that it is our duty to help customers implement the most efficient licensing method that best meets their business needs. In certain scenarios, it is in the customer's interest and at the customer's discretion to consider additional licensing options"**

corporations, which have different terms and conditions designed to address different usage scenarios. There have been no recent changes to Microsoft's general licensing terms under Select, Open, or Enterprise Agreements.

"The rights enjoyed by the customers of OEMs and of Microsoft remain the same. The confusion arises over the 'rights' that are granted to the end customer for each different licence type. The scope ranges from basic licences (such as those provided through PC Manufacturers that pre-install Windows) with a core set of usage rights, up to 'premium' licence offerings that provide the highest degree of flexibility and options-as typified by 'Enterprise Agreements'."

Laver continued: "The Gartner research note overlooks this critical distinction, and fails to mention the additional benefits that customers receive from upgraded licensing options. For this very reason, the analysis and its conclusions are, in our own opinion, flawed. I would add that Microsoft is not trying to secure additional revenue by causing confusion over Windows licence compliance issues. Gartner Group's research note has resulted in unnecessary confusion for its clients on this issue. We believe that it is our duty to help customers implement the most efficient licensing method that best meets their business needs. In certain scenarios, it is in the customer's own interest and at the customer's discretion to consider additional licensing options – depending on how they wish to use the software."

Windows licences were last in the news when an Australian Linux user managed to get a refund of \$110 from Toshiba. His new laptop came pre-installed with Windows but this was going to be wiped off the system, in favour of Linux. From reading the small print in the Windows licence, it was discovered that it was possible to obtain a full refund if the user did not agree to all its terms. His success led to the creation of 'Windows Refund Day', a few months later.

## WINDOWS LICENSING

**Are you breaching the Windows licence?**

→ Pre-installed Microsoft software is covered under an agreement between the user and the vendor.

→ Businesses that wipe new PCs and install their own highly customised configurations are technically breaching this agreement.

→ With all the legal eyes currently focused on Microsoft, such a complex licensing system has to be seen as benefiting Microsoft.

## SOFTWARE NEWS

### SYMANTEC BUYS AXENT

Symantec has purchased Axent Technologies as part of a stock swap valued at \$975 million. With no obvious product duplication, the software from both companies is likely to be pooled together. Symantec's anti-virus and utility products are well known to PC users. Axent's range includes intrusion detection and vulnerability assessment security tools.

### VIDEOWAVE DOWNLOAD

MGI's popular VideoWave III is now available in a 30-day trial downloadable version. Otherwise it's a fully functional version and can be obtained from [www.videowave.com](http://www.videowave.com). It includes the ability to capture and produce video in many popular formats, including native DV, Windows Media Web-streaming format and MPEG-2.

### OFFICE 2000 PATCH

Microsoft has released a patch to correct another security vulnerability in Office 2000. As it stands, a malicious user is able to create a page of HTML that could cause an Office 2000 application to crash or for potentially malicious code to be run. Applications in Office 2000 can read HTML files saved as Office documents. This vulnerability can be exploited through a malformed data object tag embedded in one of these files. More information can be found at [www.microsoft.com/technet/security/bulletin/fq00-056.asp](http://www.microsoft.com/technet/security/bulletin/fq00-056.asp)

### THEY'RE BACK ON DVD

The DVD edition of Men in Black ([www.mibondvd.co.uk](http://www.mibondvd.co.uk)) looks to be one of the most advanced DVDs yet. Two versions are available – a widescreen Collector's Edition (£19.99) and a two-disc Special Limited Edition (£24.99). Both are claimed to feature never-seen-before footage.

### OFFICIAL WINME MAG

To accompany the launch of WinME on 14 September, Microsoft has commissioned an official magazine from Future Publishing. The magazine offers a complete guide to all the new features of WinME including IE 5.5, Media Player 7.0 and Movie Maker. It comes with a CD-ROM which includes a version of MSN which works in the UK – an embarrassing mistake by Microsoft means the version shipped with WinME doesn't work. The disc also includes videos and a comprehensive WinME Companion. The magazine is on sale from 7 September priced at £4.99. More can be found on the Web site at [www.windowmemag.com](http://www.windowmemag.com)

# Unmetered Net access



↑ Unmetered Internet – can it work in the UK?

## → Service closures announced

**A**lthough users may think it's heaven to be connected to the Internet without paying metered call charges, many of the ISPs would probably liken the experience to some sort of hell. It's a sort of reverse Millennium Dome – ISPs massively underestimated users' interest. Now, they are faced with terminating current offers or taking action against customers who overuse their accounts.

LineOne's unmetered service provides free unmetered Internet access as long as £5 of voice calls is made each month. But the company is terminating this package at the end of September. Customers wishing to continue with unmetered access will have to move to BT's off-peak SurfTime package. Suggestions that BT forced the closure of the offer have been denied (BT owns half of LineOne). CallNet has also announced the closure of its unmetered service from 5 September. Once again, this is

down to the high demands made by users and the low income it generates.

Breathe has also been experiencing problems. Five hundred users were thrown off its unmetered package when the company decided they were over-using the service. And it says it will continue to target users who misuse their connections. But following complaints from some of the 500 users, the Advertising Standards Authority is investigating Breathe's advertising literature.

Users on other unmetered services are continuing to complain about poor levels of service. RedHotAnt users are still struggling to achieve connections and its support has come in for bitter criticism. We logged a fault report through its highly cumbersome online support system. No response had been received after a period of two months. And, again, the company did not respond to our request for an interview.

# Processor speeds to hit 2GHz next year

→ Pentium 4 to reach 2GHz by early 2001

**H**igher speeds are the order of the day in the PC market. And credible competition for Intel certainly seems to be the reason. AMD has released a 1.1GHz version of its Athlon processor. These were expected to be available in new PCs from the end of August. AMD now boasts a family of big name supporters, including Hewlett-Packard, Compaq, IBM and Gateway. As reported last month, Intel's new Pentium 4 is expected to launch at around 1.5GHz. And within months



↑ AMD keeps up the pressure on Intel.

this is expected to rise to 2GHz. This means the PC processor market is evolving faster than ever before. In the late 1980s, a jump from 8MHz to 10MHz took virtually a year.

Realising it has to fight

on all fronts, Intel is now planning to keep the Pentium III alive for some time yet. Although the 1.13GHz version was expected to be the final incarnation, the company is now believed to be planning a 1.4GHz version. To achieve this speed, the Pentium III die size will be reduced to 0.13 micron and copper interconnects are likely to be employed. Although this might appear to be good news for PC users, faster obsolescence is also causing some resentment among users.

## Storage capacities on the rise

→ 80GB for hard drives and 1.3GB for CD-ROM



**M**axtor has revised its DiamondMAX range of hard drives to include the DiamondMAX 80 IDE – an 80GB model that Maxtor believes is the highest capacity drive of its type. Based on four highly compressed 20GB platters, the company says speeds of up to 100MB per second can be achieved despite the drive running at the standard 5400 RPM. According to Mike Cannon, Maxtor president, “Maxtor has driven IDE drive capacity, in a 1-inch height, beyond 1.6-inch SCSI capacity for the first time.” Other launches include a 45GB drive for its DiamondMAX Plus range and a 40GB model for the DiamondMAX Value line. More information can be found at ([www.maxtor.com](http://www.maxtor.com))

Panasonic has also just launched its 4.7GB DVD-RAM drive, with double-sided discs offers 94GB. The company hopes the new drive will help settle

← 80GB provides enough room for MP3 and other Internet download.

the confusion of rewritable DVD standards. We'll be reviewing the

first of these new drives in next month's **PC Plus**.

Meanwhile, Sony and Philips are getting together to develop a double-density Recordable/Rewritable CD-ROM disc that will offer a storage capacity of 1.3GB. Existing standards will only need minor modifications to accept the new discs. Although 650MB was once considered to be an enormous amount of storage, the popular CD-ROM format has since been frozen in time. Hard drive capacities, on the other hand, have increased massively over the same time period. The new CD-ROM format should be available for licensing from the end of September. Further information can be found at [www.licensing.philips.com/news/archive/0311prDDCD.pdf](http://www.licensing.philips.com/news/archive/0311prDDCD.pdf)

## Memory prices set to climb

→ Chips prices could triple by December

**PC** memory prices look set to rise again, as manufacturers turn their attention towards more profitable lines – such as flash memory sticks for MP3 players and digital cameras. This has inevitably caused a slowdown in the production of memory chips used in PCs. And this is the time of year when large PC manufacturers such as Dell purchase huge quantities of chips, ready to ramp up production for the Christmas market.

Another factor which is



← Court win enables Rambus to claim royalties.

causing higher prices comes from a court case won by Rambus. This was taken out against Sega and Hitachi and its success means Rambus will be able to claim royalties from any company manufacturing DRAM memory modules. Earlier in the year, Rambus asked

the US ITC (International Trade Commission) to examine whether Sega and Hitachi had infringed one of its patents. All of these factors combine to put pressure on PC memory. Some chips are expected to end the year at three times their cost at the start of the year.

### HARDWARE NEWS

#### RAPID SECOND GENERATION FOR INTELLIEYE MOUSE

Microsoft has already announced the second generation of its IntelliEye optical mouse. The first version worked on any type of flat surface and required no cleaning because of the absence of moving parts. It worked by taking 1,500 images of the surface each second. The new version is claimed to be a third faster because it captures 2,000 images per second. As well as replacements for the current IntelliMouse Optical and Explorer designs, further models are expected to be announced when the technology becomes available later in the year.

#### SIGHT & SOUND DOWN AND OUT

Sight & Sound Ltd, the Midlands-based PC assembler, has gone into administration, leaving debts of around £1 million. In its last full year of trading, the company only made a profit of £37,000 on sales of more than £10 million. Some creditors are expected to be paid off before the company is liquidated.

#### ONE IN THE PALM IS WORTH MORE FOR SONY

Sony has revealed details of its own portable device that's based on the Palm operating system. Expected to ship in Japan on 9 September, the Sony Palm PC will be available with a colour or black and white display. The specification includes 4MB of embedded Flash memory, an 8MB Memory Stick and gMedia software for AVI, QuickTime and MPEG video support. UK availability has yet to be decided.

#### COMPAQ GADGETS

With ever-greater competition in the PC world, Compaq appears to be getting into gadgets. Its iPaq range is being extended to include smaller devices, including two MP3 players and a two-way pager. A European launch is not expected until next year.

#### WRIST LINUX

IBM researchers are showing off a watch-sized device which runs Linux. It has both RF and IR wireless connections. It can view condensed e-mail messages and has a calendar, address book and other PDA functions. WAP-like Internet services are to follow in the near future. It's all part of IBM's assessment of the viability of Linux across all platforms. The large touch-sensitive screen does make it a rather large for a watch, though.



↑ .NET can be subsidised by other Microsoft activities, but success is not guaranteed.

## MICROSOFT ASP VENTURE GETS REORGANISED

**Microsoft** has started to reorganise, as its Application Service Provider (ASP) .NET initiative to deliver software and services over the Internet gets underway. Microsoft .NET will see the release of new versions of the company's operating systems and applications. There will be heavy reliance on XML and users will rent the software they need and access it online. As part of the reorganisation, the company has created the .NET Services Group, made up of 2,000 staff. This is a component of the new Personal Services and Devices Group, headed by the former Silicon Graphics chief Rick Belluzzo. Vice president of the new group is Bob Muglia, previously boss of Microsoft Office.

Presumably Microsoft has not seen what analysts at Gartner have had to say on the likely success of ASPs. In a report issued on 9 August, Gartner reported the existence of 480 retail ASPs. But with more joining every day, it believes a failure rate of 60% is likely by the end of 2001. Suggested reasons for failure are hardly surprising – lack of venture capital, bankruptcy, mergers and stiff competition. And by 2004, Gartner says only 20 of the 480 will remain as enterprise-class, full-service retail ASPs. Microsoft is obviously able to subsidise .NET with income from its other activities, but its success is by no means guaranteed. Last month we reported a survey by The User Group in London revealing that 82% of businesses said they would never use an ASP.

## NETSCAPE BROWSER HIT BY JAVA BUG

**It's** Netscape's turn to have a browser vulnerability. A flaw has been discovered in its browser's Java support. This means a malicious Web site could be able to read the contents of a local hard disk. Some security experts have suggested that the problem could be more serious than this, perhaps allowing a malicious user to access ports or other local devices. No patch had been issued by press time and users were being advised to switch off Java support. All recent versions of Netscape's browser are thought to be affected.



## ADSL DELAYS – BT AND OFTEL CRITICISED

BT continues to be criticised over its ADSL service. We reported last month how BT's excuse for the delays was a lack of users to test the new service. This was rather surprising, considering that always-on high-speed Internet access should be extremely popular, at least for those willing to spend the required cash. Some countries have had ADSL services for a couple of years, but BT's offering is only now getting off the ground.

Although the European Commission had asked for BT's exchanges to be opened up to competition by the end of the year, OFTEL supported BT and insisted that the previously agreed date of July 2001 should stand. But rivals wishing to launch their own ADSL services have criticised OFTEL's decision. It will clearly take years for BT to equip all its exchanges with ADSL. Rivals are therefore very keen to start their services, especially in areas that BT has so far ignored.

Meanwhile, when business users subscribe to the BT ADSL service, they will be able to rent Microsoft applications on a monthly basis. A single application from Office will cost around £4 per month, while a whole suite will cost around £25. This does sound rather expensive – considering that business licences for Office Professional would cost less than a year's rent at these rates.



↑ BT's ADSL service delayed – no one apparently wanted to test it.

## PC PLUS READERS READY FOR BROADBAND

If the poll of **PC Plus** readers is to be believed, the move to broadband will be a popular one. Over half of our online poll respondents were keen. Full results:

- 27% of readers claimed they wanted broadband now
- 55% gave broadband the thumbs-up but only if it is cheap
- 9% claimed they would wait and see
- 10% said they wouldn't bother at all

Our current poll asks if we trust Microsoft's move into the Net with .NET and Whistler. Vote at [www.pcplus.co.uk](http://www.pcplus.co.uk)

## LINUX NEWS

### 'CHICKEN AND EGG' DILEMMA

Linux could be in a 'chicken and egg' situation, according to analysts at IDC. Although users perceive it as a cost-effective alternative operating system, a lack of applications and support are holding it back. But the industry is delaying development until demand increases. It's difficult to see how this situation can be resolved, especially as Linux is still some way from Windows' ability to install and recognise most hardware with little interaction from the user.

### LINUX APPLICATION STANDARD

The Free Standards Group [[www.freestandards.org](http://www.freestandards.org)] is producing a specification that will enable applications to run on all the major forms of Linux. Like Unix in the 1970s and 1980s, Linux has been held back because users have been confused about which version to install. But as with all specifications, the current draft is already behind what's happening in the market – the version 2.4 kernel was released after its publication.

### CALDERA BUYS SCO

In a move that will strengthen the Linux community, the Unix vendor SCO has been purchased by Caldera. SCO will operate in a separate division, delivering what Caldera terms its 'Open Internet Platform'. This essentially boils down to offering Unix and Linux server software and services around the world.

### LINUX GETS BOOST FROM IBM

IBM is dramatically increasing its support for Linux in Europe, with a \$200 million investment. This will see the creation of Linux development centres, complete with 600 Linux hardware and software consultants. The company is also planning to forge alliances with other Linux-friendly organisations.

### HAMMER TIME

RedHat and SuSE have announced support for AMD's Sledgehammer, the forthcoming 64-bit chip primarily aimed at the server market. AMD recently released the specifications for the x86-64 architecture the chip uses. The combination of Linux and Sledgehammer could prove really troublesome to the Intel/Microsoft combination, both camps are gunning for the same market but with quite different approaches. AMD has a new Web site to support the project at [www.x86-64.org](http://www.x86-64.org)



# Microsoft piracy war

→ 2 million sites selling illegal software

↑ Users of illegal software do not get support but they might get a virus or timeout.

Microsoft is stepping up its campaign against pirate software sold on the Internet. So far this year, the company has forced the closure of 16 auction sites based in the UK. And over 43,000 have been closed down globally since its campaign started. A further 77 'takedown notices' have been issued to UK ISPs, whose servers have appeared to be hosting illegal software. Nearly 90 per cent of these notices have resulted in the removal of illegal material. But the scale of the problem is mind-blowing – there are thought to be more than two million Web sites offering illegal software for

sale. For this reason, Microsoft employs intelligent search tools to track down its software day and night.

Its latest success came at the beginning of August when the Grimsby-based proprietor of a 'warez' Web site was taken to court for selling a variety of Microsoft software on gold CD-ROMs from a UK-hosted service.

Microsoft reminds customers that using such software leaves you open to possible legal action. Such discs can also carry viruses or beta code that could expire at any time. Anyone with information on piracy of Microsoft software should call 0800 013 2222.

## Intel and Macromedia in 3D link up

→ Shockwave player to incorporate Intel 3D software technology

Intel and Macromedia are getting together to work on improved Web 3D graphics technology. Intel's Internet 3D Graphics software is to be combined with Macromedia's Shockwave Player – the most-used Internet multimedia utility with 137 million users. The Intel Internet 3D Graphics technology has been developed by the company's Architecture Lab. It utilises adaptive 3D geometry – a set of dynamic algorithms that enable 3D content to have multiple resolutions. These



↑ Shockwave Player: improvements on the way.

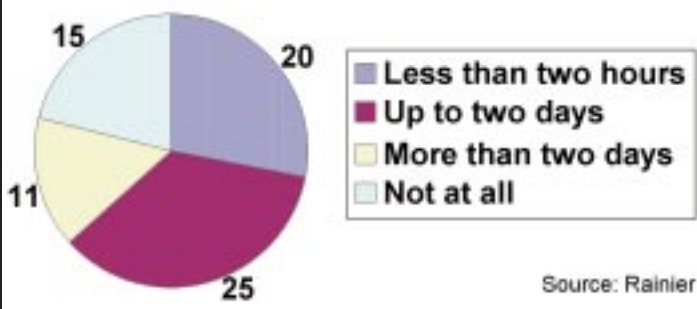
can automatically alter the quality of the 3D image, depending on the power of the user's system.

The enhanced Shockwave Player should facilitate new bandwidth-friendly interactive games, entertainment and more intuitive Internet shopping. More information about the Shockwave Player can be found at

[www.macromedia.com/shockwave](http://www.macromedia.com/shockwave) and downloadable examples can be obtained from the associated site at

[www.shockwave.com](http://www.shockwave.com) Further information about Intel's Architecture Labs can be found at [www.intel.com/ial](http://www.intel.com/ial)

## Web-Index Study 2000



↑E-mail: is it worth it?

# FTSE 100 companies fail e-mail test

→29 don't even have an e-mail contact

In its second annual survey, Rainier has concluded that FTSE and Fortune companies risk losing customers because of inadequate Internet communications. In the latest Rainier Web-Index study, only 71 of the FTSE 100 companies could be contacted by e-mail via their Web sites. The other 29, including Bass, Marks & Spencer and Thames Water, either did not have an e-mail contact or a Web site. Of the 71 companies contacted, only 20 responded within two hours. But of the total, more than 20% failed to respond to multiple requests for basic

investor information after a wait of three months. The graph summarises the total number of responses for companies with an e-mail contact.

There has been plenty of noise about e-commerce as the new economy. The big companies are keen to appear on the ball but it would appear that behind the veneer there is still a lot of work remaining to be done. When you ring a company you expect the phone to be answered and when you e-mail them you expect a reply, a lesson that doesn't appear to have been fully appreciated yet.

## Search engines failing users

→Deep Web may be 500 times larger

Despite the large number of pages indexed by newer search engines such as Google.com, the total Web may actually be 500 times larger, says online content company BrightPlanet [www.brightplanet.com](http://www.brightplanet.com). Using its own LexiBot technology, BrightPlanet has been able to unearth hundreds of billions of extra pages. The majority of these documents are stored in databases – and are therefore hidden from traditional search engines. BrightPlanet classifies such documents as 'deep'



content and its discovery has come about after three years of research. By capitalising on LexiBot technology, the company aims to be the premier provider of Internet content and search data. This follows many similar reports that only a fraction

of the Web is actually indexed. Rather than the one vast interconnected web of pages that many evangelists have predicted, it has fractured into a central core of highly indexed and linked pages surrounded by a hinterland of less accessible material.

## INTERNET NEWS

### MICROSOFT SLAYS COOKIE MONSTER

In a move that acknowledges cookies as a poor technology, Microsoft is aiming to improve the way IE 5.5 deals with them. There will be changes to the way users can accept or reject cookies – an improvement on the current all, none or prompt options. A warning should display when an attempt is made to write 'third party' cookies to a PC – and a 'Delete All' button should be available.

### GECKO FORMS HEART OF DELAYED NAVIGATOR 6

With its market share continuing to slide, Netscape has yet to get its 'sixth' generation browser off the launch pad. Navigator 6 is built around Gecko, a compact browser technology that can also be used inside other applications. Netscape is also promising that its new browser will be fully compliant with World Wide Web Consortium standards. But it's not clear how many users are waiting around for the new release – for some time now, developers have been deciding what Netscape technology to support – if any.

### BUY.COM SIGNS UP AFFILIATES

Online retailer Buy.com has started an affiliate programme, allowing any other Web site to recommend products on Buy.com's site. A five per cent commission is paid on any sales and no membership fee is required. The US version of the service signed up 10,000 affiliates in its first few weeks.

### OFTEL TO MERGE WITH THE ITC

Showing how technologies such as the Internet, television and telecoms are merging, two watchdogs look set to become one. These are the telecoms watchdog OFTEL and the Independent Television Commission (ITC).

### ONLINE SECURITY BLUNDERS CONTINUE

These days it seems you're no one in business unless you've had an online security gaffe. A major organisation seems to be hitting the headlines almost every day. Woolworths had just joined the club at the time of writing, after a user found it was possible to read other users' personal information. And its site was down for many days while the problem was fixed. Barclays is also a fully paid up member of the club. A software upgrade allowed customers to view bank account details belonging to other users.

OCTOBER – NOVEMBER 2000

## UPCOMING EVENTS

→Get yourself to this month's computing and I.T. events

Date **4-5 October**  
Event **Softworld in Accounting & Finance**  
Venue **NEC Birmingham**  
Contact [www.softworld.com](http://www.softworld.com)

Date **10-11 October**  
Event **Linux Expo 2000**  
Venue **Olympia 2, London**  
Contact [www.itevents.co.uk](http://www.itevents.co.uk)

Date **10-11 October**  
Event **Toonz (The Developing World of 2D and 3D Animation)**  
Venue **Crowne Plaza, London**  
Contact [www.access-conf.com](http://www.access-conf.com)

Date **18-19 October**  
Event **Internet World Scotland 2000**  
Venue **The Scottish Exhibition Centre, Glasgow**  
Contact [www.internetworld.co.uk](http://www.internetworld.co.uk)

Date **24 October**  
Event **Using the 'webforbusiness' 2000**  
Venue **The Renaissance Hotel, Manchester**  
Contact [www.wfb.uk.com](http://www.wfb.uk.com)

Date **24-25 October**  
Event **Financial Management Software Solutions**  
Venue **Renaissance Hotel, Manchester**  
Contact [www.fmss.co.uk](http://www.fmss.co.uk)

Date **1-2 November**  
Event **Softworld Sales, Marketing and Customer Management**  
Venue **Hall 18, NEC Birmingham**  
Contact [www.softworld.co.uk](http://www.softworld.co.uk)

Date **1-3 November**  
Event **Compsec 2000**  
Venue **Elsevier Advanced Technology, Westminster**  
Contact [www.elsevier.nl/locate/compsec2000](http://www.elsevier.nl/locate/compsec2000)

Date **7-9 November**  
Event **CIM 2000**  
Venue **NEC Birmingham**  
Contact [www.cimshow.co.uk](http://www.cimshow.co.uk)

Date **7-9 November**  
Event **E-Business Expo**  
Venue **Grand Hall, Olympia**  
Contact [www.ebizexpo.com](http://www.ebizexpo.com)

Date **7-9 November**  
Event **Mobile Business Solutions**  
Venue **Grand Hall, Olympia**  
Contact [www.mbusiness.co.uk](http://www.mbusiness.co.uk)

Readers are advised to pre-register and check with organisers of all events.

## ANALYSIS

# The battle of the processors

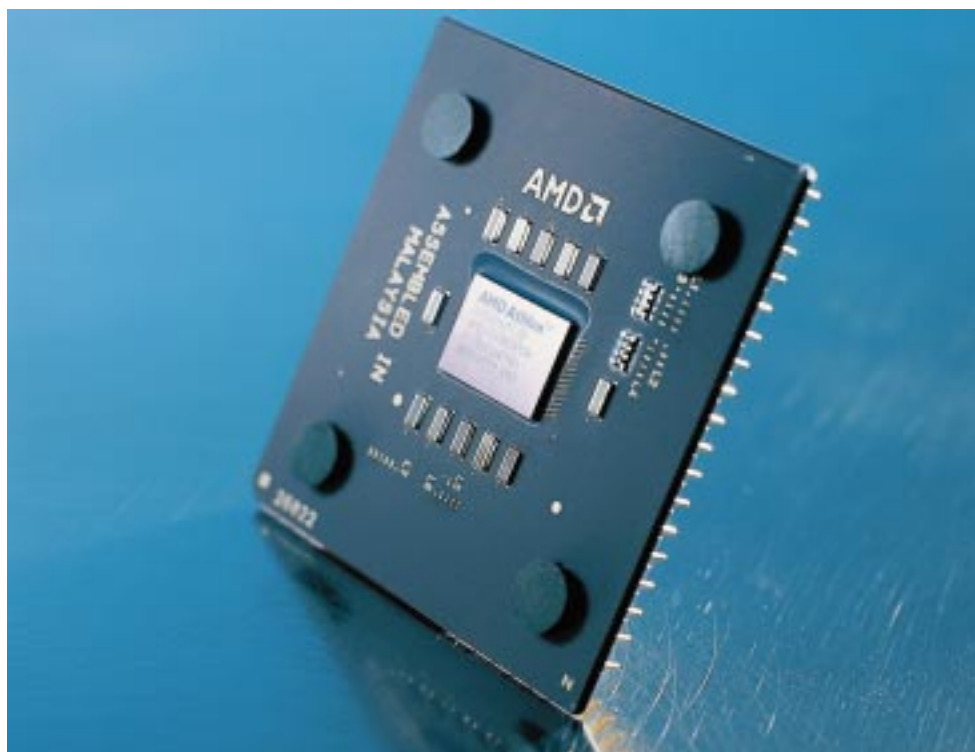
➔ Nothing stands still for long in the processor world. This month **Paul Warner** takes a look at the latest offerings from the chip world

**F**or many years, Intel has had the x86 chip market pretty well sewn up. It could release new processors according to their road map, making certain to produce maximum revenue from each new hike in processor power. These days things have changed, and the processor manufacturer, AMD, has certainly shaken things up. This autumn is going to be the battle of the 1GHz super processor with the main contestants being Intel with its fastest Pentium III soon to become number 4, against AMD and its super fast Athlon chip, with the Sledgehammer waiting in the wings.

They won't have it all their own way, as other manufacturers like Transmeta are starting to emerge. Using radical new designs, these may herald the development of super fast, super cool processors, suitable for the mobile world as well as the desktop.

## Pentium 4

The Pentium range has had quite a run and the latest Pentium III is now hitting 1.13GHz, just 0.01 faster than AMD's recent 1.1GHz unit. This may not seem much of a difference but does just give Intel the kudos of having the faster processor. Later this year we can expect to see the introduction of the much acclaimed Pentium 4. Starting at a clock speed of 1.4GHz it's planned to reach up to 2GHz. This chip has been known as the Willamette but in its wisdom, Intel decided to stick with the Pentium name



and increment it by one.

The Pentium 4 heralds a radical change in chip design for Intel. A 'quad speed pump' will push the clock up to 400MHz instead of the maximum 133MHz delivered by the Pentium III. Peak memory bandwidth is doubled and a new Tehama i850 chipset will be implemented, which is designed for use with expensive Rambus memory. However, there is a rumour of a Brookdale chipset due out next year, which supports both SDRAM and possibly the latest DDR memory – a great victory for those of us who don't want to fork out an arm and a leg for Intel's Rambus.

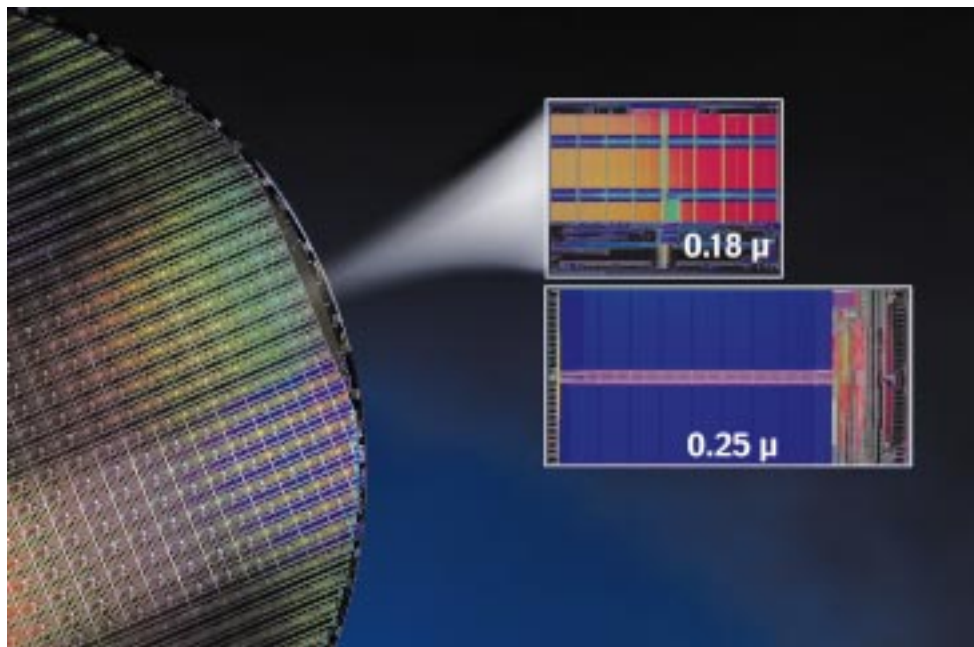
A larger onboard cache should help overcome any restrictions when running at these high clock speeds and although initial production will use 0.18-micron technology, there are plans to move toward 0.13 next year. The processor now includes a 20 issue deep pipeline. This is a complex area in the design of the processor but to simplify the concept it may help to look at previous pipeline

↑ The AMD Thunderbird processor is at the forefront of clock speeds.

structures. The original Pentium could complete 17 instructions in 19 clock cycles. Along came the Pentium Pro that managed the same in nine cycles. The Pentium 4 architecture has been radically redesigned. The top level supplies a Trace cache with data from the Level 2 cache via the x86 decoder. This trace cache replaces the earlier Level 1 cache and from this the data is fed at a rate of 3 micro-ops per clock cycle into either an integer or floating point/multimedia stream. The integer processing now runs at double the processor clock rate and should show some considerable performance gain. However, the floating point processing doesn't appear to be as sophisticated as the Athlon solution – I'll run some real benchmarks in the future.

Performance should be significantly improved compared with current Pentium III processors. Intel plans to improve the existing Pentium by adding a 200MHz front side bus in a similar way to the Athlon chip. However, it doesn't plan to make this





← Latest processors are built using 0.18-micron silicon. Expect to see 0.13-micron in the near future.

available on the Celeron processor, so as to maintain a performance differential between the two processors. Very few people bought the higher priced Pentium when the cheaper Celeron came out with only marginally slower performance.

Other Pentium class processors are in the pipeline. These include the elusive Foster chip, purportedly an alternative version aimed at a similar market to the existing Xeon range used on workstations and servers. This will probably use RAMBUS and be closer to the original Pentium 4 design before Intel had to include SDRAM and DDR RAM support.

## Sledgehammer

AMD isn't being complacent. Its existing Athlon processor may be the only true seventh generation processor using X86 and available for use on a PC, but Intel will soon catch up with its new Pentium 4 and Itanium processors.

AMD publicly released the x86-64 in the August 10, Architecture Programmers Overview, the instruction manual the software community can use to begin incorporating x86-64 technology support in its operating systems, applications, drivers and development tools. AMD's x86-64 technology will be available in the family of processors codenamed Hammer planned to be announced at the end of 2001.

The Sledgehammer is AMD's next generation 64-bit processor, and is planned to be backwardly compatible with all previous 32-bit applications. AMD has enhanced the current x86 instruction set by introducing two major features: a 64-bit extension called long mode, and register extensions. Long mode consists of 2 sub-modes: 64-bit mode, and compatibility mode. 64-bit mode supports new 64-bit code through the addition of eight general-purpose registers and widens them all along with the instruction pointer. It also adds eight 128-bit floating point registers. Compatibility mode supports existing 16-bit and 32-bit

applications under a 64-bit operating system. In addition to long mode, the architecture also supports a pure x86 legacy mode, which preserves binary compatibility with existing 16-bit and 32-bit applications and operating systems.

AMD has reported that samples of the Sledgehammer are expected very soon – maybe by the time you read this article. I expect that engineering samples are already out there with the major PC builders.

## "Intel will soon catch up with its new Pentium 4 and Itanium processors"

### Transmeta

This isn't the name of a chip but rather that of a company that's rapidly gaining credence for its new family of processors under the Crusoe label. The Crusoe is aimed at the burgeoning mobile market and features remarkably low power consumption. The TM5800 1GHz processor is likely around the end of the year, running up to 1GHz and including between 512KB and 1MB of second level cache as standard in a 360-pin package measuring a mere 25 square mm. It

should include an FSB running at 200MHz and support DDR memory

It also expects to introduce a lower cost chip running at 533MHz with 256KB L2 cache and using bus speeds of 133MHz.

The Crusoe uses software emulation to replace many of the transistors found in X86 processors, to process the instructions. This reduces the power required and should considerably improve the power saving on mobile equipment. The emulation or Code Morphing as it's more properly called, intercepts the x86 instructions, analyses them and either interprets them or translates them into its own native code. This is similar to a process Digital has used with its Alpha processors on its Windows PCs. This was never capable of competing on level terms with the Intel architecture. We'll have to wait and see if Crusoe can do any better.

### Other areas of interest

Processors aimed at entry-level machines are getting faster and faster and both AMD and Cyrix have new ones. Despite its problems since the takeover by VIA, Cyrix will soon have its own Celeron basher: The socket 370 Samuel 2. This uses a 0.15-micron process with a 128K L1cache and 64H L2 cache. It's pin-compatible with the Celeron but will run up to 133MHz FSB, with speeds planned of up to 1GHz next year. First samples are coming in at 733MHz.

Meanwhile AMD has arrived with the Duron. This was previously known as the Spitfire and while using the same size cache as the Samuel chip, AMD has included DDR support giving it effectively a 200MHz FSB. AMD claims a 25 per cent performance increase over Celeron processors at the same speed. **PCP**

## → Thunderbirds are go!

**AMD's Athlon goes beyond 1GHz with the new socket**

For the moment, AMD has pushed the Athlon to over 1GHz with the new socket 'A' 1.1GHz Thunderbird processor. This is about as good as it gets but expect the new up-rated Mustang to show fairly soon. It will aim to hit the 2GHz ceiling and with increased cache is AMD's answer on the new Intel Pentium 4. A mobile version is also planned, nicknamed the Corvette and claimed to have a maximum power requirement of fewer than six watts.



← About as good as it gets at the moment and certainly giving Intel something to think about.

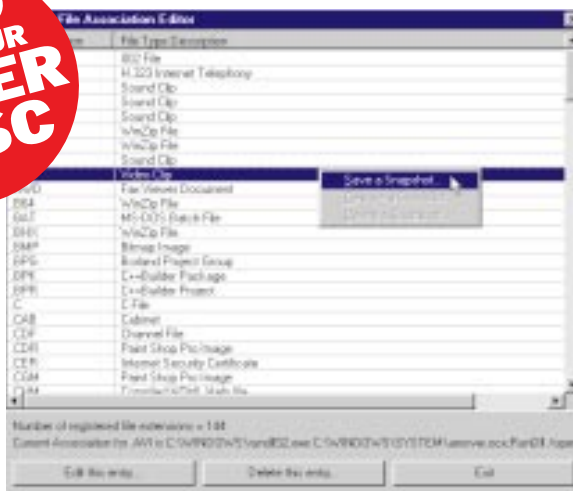
## C++ Workshop

# Matching files to file types

Dave Jewell shows you how to make File Associations easy



→ In this month's MasterClass, the File Association Editor acquires the ability to save the current list of file associations to disk as a .SNAP file which can easily be reloaded back into the registry.



**Y**ou'll remember that in last month's C++ MasterClass, we started the development of a File Association Editor. The aim of this little utility is twofold. First, as a finished program, it can be used to ensure that you (not Microsoft!) retain control of which applications are associated with which file types. If – like me – you've been profoundly irritated by Windows Explorer's insistence on grabbing the file associations for .GIF files, .JPG files, and so on then you'll know exactly what I mean. Second, and rather more importantly, the File Association Editor demonstrates how to manipulate file associations from within your own code. As I pointed out last time, it's nice being able to give users of your program the ability to selectively control which file types are associated with it.

At the end of last month's class, we had a utility which could be used to browse, edit and delete file association entries in the system registry. Although that's great as far as it goes, there's more that we can do. Imagine that you've just installed yet another piece

**PCPlus SUPER DISC** PATH: \prog\files\cpp

of commercial bloatware and discovered that half a dozen file associations have been trampled on. Fixing these file associations manually would be a tedious business. Wouldn't it be great if you could take a 'snapshot' of the registry before doing the install and then restore your snapshot afterwards? **PCP**



Dave Jewell  
djewell@pcpmag.co.uk

**PCPlus**

## NEXT MONTH

The action list component, which has more than a little to do with menu items. Action lists can be used to reduce the complexity of sizeable C++ Builder applications

## → File Association snapshots

How to add a snapshot into the registry, leaving your favourite file associations the way you want them

As promised last month, this is exactly what we're going to do. Take a look at the accompanying illustration. As you can see, I've added a small popup menu to the main list-view control. Anytime that you right-click the mouse in this control, the menu will appear. It contains three entries – one for saving a registry snapshot, another for restoring a snapshot and a third for deleting the snapshot. I've written the program in such a way that multiple snapshots are supported; each snapshot is stored as a file with an extension of .SNAP (though it's easy to change this extension if it conflicts with something else on your machine) and all the snapshots are stored in the same directory as the File Association Editor itself.

If you look closely, you'll see that the Restore and Delete menu items are disabled. This is the situation when you first run the program because – initially – there will be no .SNAP files on your PC. Once you've created one or more snapshots, these menu entries will be enabled. You might ask why I've added support for multiple screenshots – why not just make one backup, and restore it as necessary? Well, I wanted to cater for folks who install and delete software on a regular basis; using this program you could (if really paranoid!) backup your file associations on a daily basis, giving each .SNAP file a name which indicates the time/date it was created. Alternatively, you might only ever bother with one .SNAP file – the choice is yours.

### How it works...

Okay, so we've clicked the Save a snapshot menu item and created a snapshot file. The code shown here is part of the OnPopup handler for the popup menu mentioned earlier.

```
TSearchRec sr;
// Look for existing snapshots & enable menu
items accordingly
MenuRestore->Enabled = FindFirst (ExtractFilePath
(Application->ExeName) + "*. " + SNAPEXTENSION,
faAnyFile, sr) == 0;
MenuDelete->Enabled = MenuRestore->Enabled;
FindClose (sr);
```

It uses the FindFirst and FindNext routines to check for the presence of one or more snapshot files in the directory where the File Association Editor is located. If found, then the restore and delete menu entries are automatically enabled.

### Quick Tips

#### MENU TWEAKING

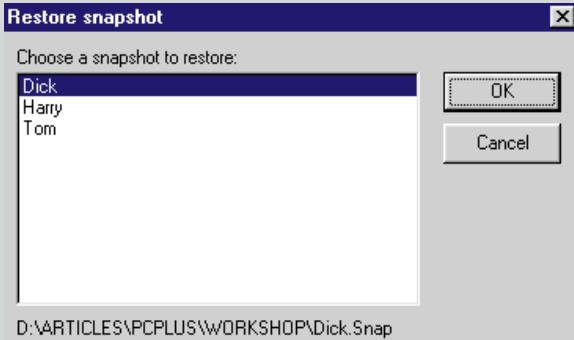
If you ever want to perform on-the-fly menu tweaking in one of your own programs, the OnPopup handler is generally the best place to put it.

Incidentally, I should mention that SNAPEXTENSION is a constant that I've defined in MAINFORM.H. This makes it easy to use a different extension for the snapshot files – see "Avoiding File Extension Assumptions".

Once you've saved one or more snapshots, you can use the Restore menu item to view

the existing snapshots and choose which one you want to reload into the registry. Although the screenshot files have been given rather whimsical names here, you would typically use a more descriptive name that helps identify them, for example, before MegaWord for Windows install, or whatever.

The MenuSaveClick routine is what's used to create a screenshot file. It starts off by initialising the various fields of a SaveDialog component according to the actual file extension that we're using. A standard Save As dialog is then displayed and the user is invited to type the name for the wanted snapshot file. If the dialog was successfully executed (that is, Cancel wasn't pressed and the Execute method returns True), then the code checks to see



if the file already exists. If it does, the user is asked to confirm that it's okay to overwrite the existing screenshot.

Finally, the 'guts' of the code uses the built-in `TIniFile` class to create the screenshot file. As you can see, these files are actually 'camouflaged' .INI files with a different file extension. Well, why not make use of the existing routines that are provided? It's a lot easier than mucking about with `fopen`, `fclose`, and other low-level C/C++ routines. Each file association contained in the list view control is written to our 'stealth' .INI file, using the file extension as a key. The right-hand side of the .INI file entry is made by concatenating the file description, command string and Level-2 registry name. (For an explanation of these terms, see last month's Masterclass.)

## Quick Tips ERRORS

Only a very badly written application would prevent the user from doing something, without explaining why there's a problem. For this reason, you'll see that we display a warning message indicating that snapshots must be located in the 'home' directory.

I mentioned earlier that it's only possible to save snapshots in the same directory where the File Association Editor lives. I did things this way simply because it makes it dead easy to scan for a list of existing snapshot files. However, if we're going to use the standard Save As dialog to request the wanted filename, how can we force the user (be it ever so politely!) to store files in one specific directory?

```
// Only allow the punter to save into application
directory
CanClose = CompareText (ExtractFilePath
(Application->ExeName),
ExtractFilePath (SaveDialog->FileName)) == 0;
if (!CanClose) ShowMessage ("Snapshot files must
be stored in the application directory.");
```

The answer is to make cunning use of the `OnCanClose` event associated with standard file save dialog. By putting our own code into this event handler, we can control whether or not the user-entered file and pathname is acceptable. As you can see here,



[www.pcplus.co.uk/forums/cpp](http://www.pcplus.co.uk/forums/cpp)

← Both the Restore and Delete menu items use the same modal dialog, displaying a list of previously saved file association snapshots. These can be deleted or reloaded without leaving the application.

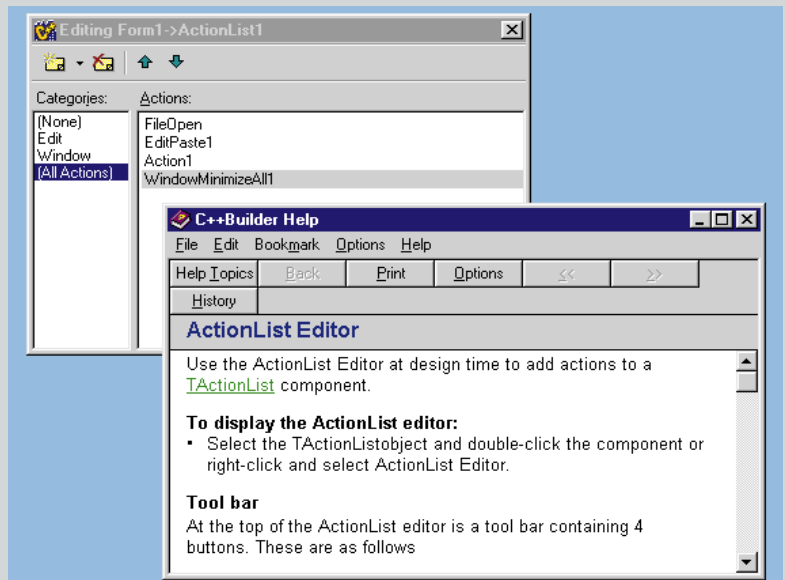
we extract the file path from the current filename and compare it with the directory where the application is located. If they don't match, then the `CanClose` variable is set to False, meaning that the user won't be able to close the dialog box.

## Two for the price of one...

Although not instantly obvious, the File Association Editor illustrates another technique which I've mentioned in the past – exploiting the Tag property. Choosing 'Restore a screenshot' or 'Delete a screenshot' both require that an existing screenshot be identified, so why not use the same dialog box to handle both cases? For this reason, you'll see that the Tag property of the Restore menu item has been left equal to zero (the default value) while that of the Delete menu item has been set to one. Both of these menu items have their `OnClick` property set to the same event handler – `MenuRestoreClick`. Internally, this code figures out what to do based on the Tag property of the menu item which was passed as the Sender parameter to the routine:

```
int mode = ((TMenuItem *)Sender)->Tag;
```

Once the mode variable has been set up, it's easy to figure out whether we're doing a Restore or Delete by referring back to this variable. Thus, once the Snapshot Picker dialog has been displayed, the code calls the `RestoreFile` or `DeleteFile` routine as appropriate.



## Avoiding File Extension assumptions

File extensions can clash with other software. Here's how to get around it

Over the last couple of issues, I've showed how to access and manipulate file association information from your own code. Because of the emphasis on doing things properly, I thought it would be a good idea to illustrate how to avoid file extension clashes with other software. Thus, the File Association Editor uses snapshot files with an extension of .Snap. But suppose you discover that some other application (maybe a screen capture program?) already uses that same file extension? It's for this reason that I've defined `SNAPEXTENSION` as a constant and avoided hard-wiring a specific file extension into the program itself. Using this technique, you need only change the declaration for `SNAPEXTENSION` and recompile in order to use an entirely different file extension.

A bit more effort is required if you go down this route. In particular, the `MenuSaveClick` event handler has to set up the `DefaultExt` and `Filter` properties of the save dialog before calling the `Execute` method. If we were using a fixed file extension, then we could replace these run-time statements with design-time property assignments.

```
TVarRec v[] = { SNAPEXTENSION,
SNAPEXTENSION };
SaveDialog->DefaultExt =
SNAPEXTENSION;
SaveDialog->InitialDir =
ExtractFilePath (Application-
>ExeName);
SaveDialog->Filter = Format
("Snapshot files (*.%s)|*.%s", v,
ARRAYSIZE(v) - 1);
```

I should emphasise that being able to change the file extensions used by an application is a compile-time programming convenience, not an end-user convenience! In other words, you probably wouldn't want to allow users of your software to reconfigure the file extension/s used by an application. Imagine if a .DOC file on one machine was equivalent to a .COD file on another! That way lies madness....



## Delphi Workshop

# Move, add and delete objects in lists

Huw Collingbourne completes his adventure game system

**PCPlus**  
SEE YOUR  
SUPER  
DISC

**PCPlus**  
SUPER  
DISC

PATH: \prog\files\delphi



↑ In the final version of our adventure game system, the player can at last take and drop objects.

**T**he time has come to finish off the adventure game which I began converting from Java to Delphi a few months ago. Last month I implemented the game saving and loading routines which scan through an entire network (the game map) of mixed objects and stream their data to and from disk. That's the hard work done. All that remains now is to add routines to let the game player stroll around from room to room, find the treasures – and steal them! **PCP**



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**PCPlus**

## NEXT MONTH

Huw shows you how to master the TreeView control by starting work on a drag-and-drop Ideas Processor application

## → Objects

Managing objects isn't the easiest thing in the world, so now we're going to tackle this tricky subject...

First, let's see how I've implemented the taking and dropping of objects. Load up the wombat.dpr project. Notice that the Take and Drop buttons work in conjunction with an edit field, inputEdit. The player types into the inputEdit field the name of an object to be taken or dropped.

Double click the Take button to locate the TakeBtnClick() method. Having assigned the text from inputEdit to a string variable, obname, this code looks to see if an object with the specified name is located in the current room. To do this it first has to establish in which room the player is currently located. This is done using the aMap method getRoom() with the index argument supplied by the Player object's position (getpos):

```
currRoom := aMap.getRoom(Player.getpos);
```

You can examine the implementation of the aMap (a MapOb object) and Player (an ActorOb object) methods in the advobjs unit. The code then attempts to find a ThingOb in currRoom (a RoomOb object) with the name specified by the player:

```
ob := currRoom.ObInThings( obname );
```

If a matching object is found it is assigned to the ob variable, otherwise ob is nil. If ob is not nil then this object is transferred from the list of things in the room to the list of things owned by the player:

```
thingshere := currRoom.getthings;  
player.TakeObFrom( ob, thingshere );
```

There are two methods here that demand closer attention. The first is the ObInThings() method which matches the name specified by the player with the name of an object in the list of objects contained within the room. If you turn to the AdvObjs unit, you'll see that ObInThings() is a method of the ThingHolderOb class. This class is an ancestor of both RoomOb and ActorOb so the method can equally well be used by a room or a player object, each of which maintains an internal list of things.

Find the implementation of ThingHolderOb.ObInThings. This simply iterates through the internal list of things from i = 0 to things.Count, comparing the lowercase name specified by the player with the lowercase name of each object in the list. If no match is made, then nil is returned, otherwise the matching object is returned:

```
ob := ThingOb(things.items[i])  
result := ob;
```

Look at the TakeObFrom() method which is responsible for transferring the object from the room's list of things to the player's list of things. Once again, this is a method of the ThingHolderOb class, from which the player's ActorOb class descends. The implementation could hardly be simpler. The method is passed a ThingOb object, t, and a TList object, tl. It then adds the object, t, to its own internal list of things and removes it from the TList, tl using the predefined Add and Remove methods of the TList class:

```
things.Add( t );  
tl.Remove( t );
```

Now let's see how objects are dropped in the game. Select the form and double-click the Drop button to locate the TForm1.DropBtnClick() method. The code here should look rather familiar. It is almost identical to the code in TForm1.TakeBtnClick apart from the fact that the ob variable is assigned from objects in the player's list, inventory, rather than from the room's list, and it is transferred to the room's list rather than to the player's list:

```
currRoom.TakeObFrom( ob, inventory );
```

The similarity of the code in these two methods is explained by the fact that both the Player (an ActorOb object) and the Room (a RoomOb object) descend from the ThingHolderOb class. All the essential methods responsible for finding and transferring objects are defined within ThingHolderOb so no new code has had to be written when transferring objects to an ActorOb rather than to a RoomOb.

## Room to move

Now that our player – and in theory, any other ActorOb objects in the game should we decide to add more characters – can take and drop objects, the next task is to let the player move around from place to place. The user interface provides four direction buttons for this. Double-click the North button to find TForm1.NorthBtnClick(). This contains a single line of code:

```
Display( Imp.MoveTo( Player, NORTH, aMap ));
```

It may be brief but this piece of code is more complex than it looks. First of all, you'll notice that MoveTo() is a method of the Imp object. Imp is an instance of the Implementer class which is, in effect the 'god of the game'. Whereas other objects such as Rooms, treasures and the player only have full access to their own internal data and limited access to objects in their immediate vicinity – for example, when a player takes an object from the current room – the Implementer can look down on the game from on high and mess around with any object that takes its fancy. We have already used the Implementer to save and load all the objects in a game. Now I have also given it the power to move objects around the map much as a chess-player would move the pieces around a board.

Here it is passed an ActorOb (Player), a direction (NORTH) and a MapOb (aMap). To see how it manipulates these, find Implementer.MoveTo in the advobjs unit. First it finds the current position of the ActorOb:

```
pos := actor.getpos;
```

Then it retrieves the RoomOb at that position in the map:

```
r := RoomOb(aMap.things.Items[pos]);
```

A CASE statement is used to obtain the number of the room adjoining the current room in the direction specified. So if the direction is NORTH, the RoomOb's getn function returns the number of the room leading from the northern exit:

```
NORTH: exit := r.getn;
```

Note that the values of the directions constants such as NORTH, SOUTH and NOEXIT are defined in a separate unit, advconsts, which can be used by all other units that require access to those constants.

Assuming that an exit has been located, the code then asks the actor object to alter its position to the index of the new room:

```
actor.setpos( exit );
```

Finally, the function returns a string stating the identity of the new room or 'No Exit!' if no exit was found in the specified location. This message is passed by the calling code to the Display() procedure in the wombatmain unit, which displays the string in the displayBox control.

Now let's turn to the Look button. When clicked, this displays the name and description of the current room plus a list of the objects it contains. The code is pretty straightforward. It establishes the player's current location, player.getpos, then uses this value to retrieve the room object at that index in aMap. The RoomOb's getname and getdesc methods are used to retrieve its name and description variables:

```
aMap.getroom(player.getpos).getname  
aMap.getroom(player.getpos).getdesc
```

A list of the things in the room is retrieved using the getthings method and this list is then passed to the displaythings() procedure. This simply scrolls through the list of things printing



[www.pcplus.co.uk/forums/delphi](http://www.pcplus.co.uk/forums/delphi)



← Having created a map of rooms, we now need to move around it. This is handled by the Implementer class.

out the name and description of each of them.

That done, we now have all the fundamental code needed to implement a basic text adventure game system. The project on disk is, of course, just a framework. It contains all the inner workings of a game but not the fun stuff – such as the puzzles.

For the purposes of testing and debugging, I've created a small map of six rooms, with just one ActorOb (the Player) and a handful of treasures and assorted junk lying around in the rooms. The objects are all initialised by the TForm1.CreateObs procedure. In a finished game, you would probably want to write a separate application that would create the map and objects and write them as data to disk (using Implementer.SaveGame). This data would then be loaded automatically when the game itself is run.

There are a few other refinements you might want to make too. For example, if you look at the original Java version of the game, which you'll find on the **SuperDisc**, you'll see that the Java Implementer encapsulates an Adventure object containing everything in the current game. This Adventure object contains both the Map and the Player. This is a much neater, more thoroughly object orientated programming (OOP) system than my Delphi translation.

I have to own up to the fact that I slipped into my old bad habits when I came to the Delphi coding. Initially I went to great lengths to stick to a rigorous OOP style. And then, right at the last moment, I went and spoil it all by declaring the aMap and Player objects in the VAR section of wombatmain. This is quite a normal thing to do in Delphi programming. But from an OOP point of view, it is illogical. It places the map and the player within the scope of the TForm1 object. They would be much better encapsulated either within the Implementer class or, better still, within an Adventure object inside the Implementer class.

If you want to gain a better understanding of Delphi's OOP – or if you plan to write your own adventure games – you may want to rewrite my Delphi code more closely to match the Java original.

## → Playing the game

### Try out the features of Huw's adventure game system

Load and run the wombat.dpr project. Click the Look button to see find out where you are. Then click the Inventory button to find out which objects you have. Now pick up an object. Enter POPCORN into the edit box and click Take. Now click Look and Inventory again. You should see that the popcorn has been taken from the room and added to your inventory. Now let's go exploring. Click South, South and South again. After the third click, you should see that you have entered a room with no exit to the south. Click East. You should now be in Room 5. Make sure that POPCORN is still entered into the edit box. Click Drop. Now click Inventory and Look. You

will find that you no longer have the popcorn which has now been dropped in Room5. To save the game at this point, click Save.

Now, with POPCORN in the edit box, click TAKE. Click West to move to Room4. Click Look. There is a wombat here. Enter WOMBAT into the text box and click Take. Click Inventory to verify that you now have the Lamp, the Popcorn and the Wombat.

Now let's restore the game we saved. Click Load. Click Look and Inventory. You should find that the game has been restored to its previous state. You are in Room5 again. The popcorn is back in this room and the only object you have in your inventory is the lamp.

## Java Tutorial: PART ONE

## → Café society

Get familiar with the basic features of programming including events, methods, variables and operators

Without more ado, let's start coding. We'll be using the Visual Café 3 integrated development environment in this series. Visual Café is a superb programming system which combines a code editor, debugging tools and a drag-and-drop visual designer.

Start Visual Café now. Select its File menu, then click New Project. A dialog box lists several types of project. You don't need to understand the differences between these at present. Select AWT Applet and click OK.

After a few moments, a blank form will appear. You can now drag components on to the form from the tabbed palettes at the top of the screen. Make sure the AWT palette is selected. Find the TextField component. A popup tooltip gives the name of each component on the palette when you rest your mouse pointer over it for a second or so. Click TextField then click the blank form. This places an empty TextField onto the form. Now drop a Button from the palette onto the form.

You can use Visual Café's Property List to alter the appearance of controls on the form. Let's alter the caption on the button. Make sure button1 is selected. Click the text, button, to the right of Label in the Property List. Delete the text and enter:

Click Me

Note that the caption of the button on the form has now changed. Now let's add some program code. We'll start by writing the traditional Hello world program – one that displays the text Hello world in the TextField when the button is clicked.

### Unforeseen events

Double-click the button on the form. A list of events is displayed in a dialog box. An event is anything that may trigger some action in a program. A key pressed on the keyboard is an event. So is a mouse click. Select the mouseClicked event. Then click the Add button. This causes Visual Café to write some of the code needed to deal with a mouse-click event. It displays this code in the editor:

```
void button1_MouseClicked(java.awt.event.
MouseEvent event)
{
    // to do: code goes here.
}
```

Look at the first line. Here button1\_MouseClicked is the name of this block of code. In object orientated languages such as Java, a discrete block of code like this is called a method. So this block is called the button1\_MouseClicked method. In other languages, similar blocks of code are called procedures, functions or subroutines. When other parts of a program want to run code inside a method, they can do so by calling the method name.

For now, ignore the word void and the terms enclosed in brackets. I'll explain those next month. The important thing to note is that the start and end of the method are indicated by the two curly brackets. So any code that we want to be run or executed by the method must be placed between the opening bracket { and the closing one }.

At the moment, the method contains no executable code. This text is a comment:

```
// to do: code goes here
```

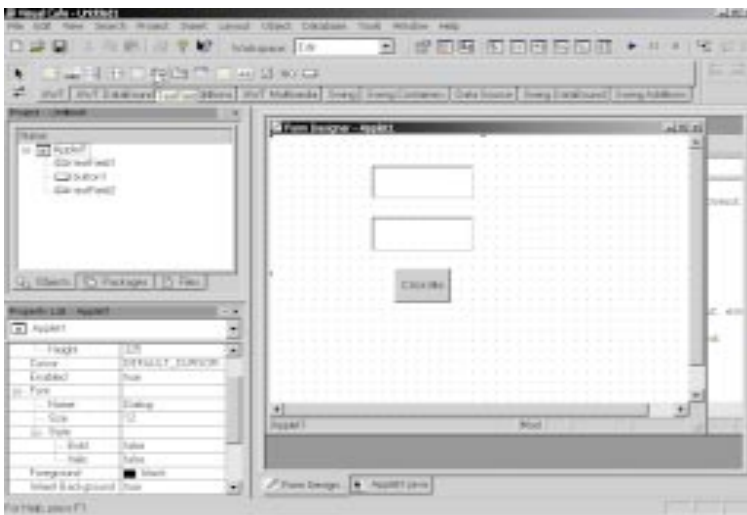
In Java any text placed after two forward slashes '/' on a single line is ignored when the program is run. This gives you the freedom to document your code by adding explanatory comments as you go along. To document this method, change the text of the comment to the following:

```
// Display 'Hello world' when button is clicked
```



# Back to basics with Java

Learn object-orientated programming from the ground up with **Huw Collingbourne's** new five-part Java tutorial



↑ Use Visual Café to create a user interface by dragging components on to an empty form. Tooltip hints display the name of components on the palette.

**T**his month we begin a series which aims to teach the fundamentals of programming with Java. If you are a complete newcomer to programming, this series will rapidly introduce you to all the fundamental concepts required for writing real-world applications. If you already familiar with another programming language, the later lessons in the series will introduce you to the unique features of Java – such as its rigorous object orientation and its ability to develop 'Applets' that can be run inside Web pages.

Java is a great way into programming. Its syntax is modelled on the C language, so a familiarity with Java will be an advantage if you want to move on to C++ or Microsoft's new C# language later on. Unlike C and C++, however, Java is a relatively 'safe'

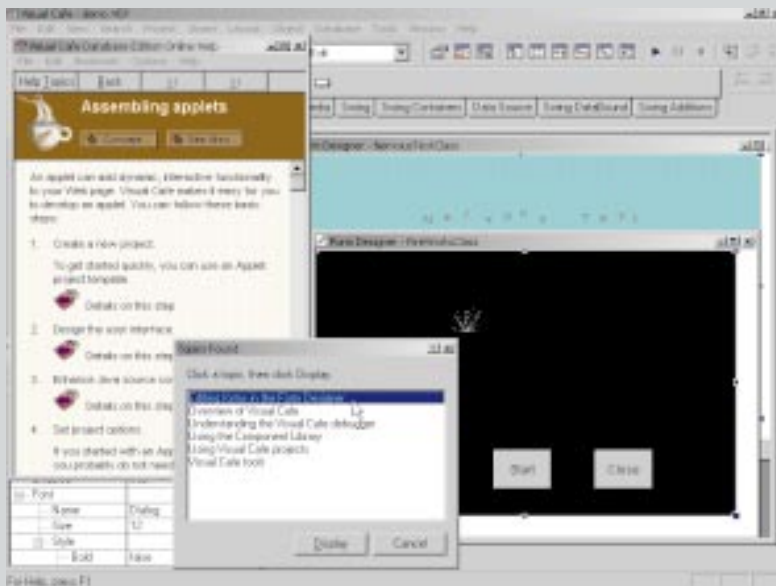
**PCPlus SUPER DISC** PATH: \prog\files\java

language. In Java, the worst that's likely to happen when you make a mistake is that your program won't run. In C++ or Delphi, a single innocent mistake can crash your PC! **PCP**

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**PCPlus**  
**NEXT MONTH**  
We'll delve deeper as we plunge into the mysterious world of Objects





↑ Can't wait for next month's lesson? Then hone your skills with the sample programs on disk – not forgetting the Visual Café help system.

Now move your cursor to the line beneath this comment but above the closing bracket. Since we want to put the text into the TextField control, we begin by specifying that control by name. The names of all the components on the form are displayed in the Project window at the top left of the Visual Café environment. The name of the TextField is `textField1`. Enter this into the editor:

```
textField1
```

Be careful that you have written the name exactly as shown. In common with C and C++, Java is a case-sensitive language. That means that it treats `TextField1`, `textfield1` and `textField1` as three different names. When referring to any object or calling a method, therefore, you must be careful to use the correct mix of upper and lowercase letters otherwise your code won't run!

## Method madness

Components such as buttons and TextFields come with numerous ready-to-run methods. But in order to use a method, we have to find out what it is called. In Visual Café that's easy. Just put a full-stop after the name of the component in your code and wait a moment. Do it now. Add a full stop at the end of the text you just entered, like this:

```
textField1.
```

A list of methods and properties will now appear. In Java, methods that set the values of a component usually start with `set` and those that get value from components start with `get`. To search the list of properties, enter the text `set`. Scroll down the list until you find `setText(String)`. That's the one we need so double-click it. Visual Café completes our code as follows:

```
textField1.setText(String)
```

To call a method in Java, you must put round brackets after the method name. Here the brackets contain the word `String`. This is Visual Café's reminder that the `setText()` method expects us to send it some `String` data to display. In programming jargon, a piece of text is called a `String` because it's made up of a string of characters. In Java, a string is enclosed between double-quote marks. Edit the code as follows:

```
textField1.setText( "Hello world" )
```

Now try running the program. You can do that by pressing `[CTRL][F5]` or by clicking the blue arrow-head towards the right of the toolbar at

the top of the screen. Oops! There's a problem. A message pane says **Build failed**. In other words, Visual Café hasn't been able to create a runnable version of the program. Higher up in the pane is another message, which states the nature of the problem. It says: **Error, then the directory path and name of the code file, ' ; ' expected**. You can double-click an error message to find the problem line in source code. Not surprisingly the line turns out to be the one we've just written. In Java (as in C++ and Delphi), individual code operations or expressions must be terminated with a semi-colon. Add a semi-colon to the end of the line:

```
textField1.setText(String);
```

Now the program should run without errors. If this is the first program you've built, a dialog box prompts you to accept various licensing terms. Click the button to accept them before continuing. Your program – or Applet – should now appear. Test it by clicking the **Click Me** button. All being well, the TextField will now say **Hello world**. Let's rewrite this so that it greets the user with his or her own name.

## Smooth operators

Close the Applet window. In the form designer, drop a second TextField from the AWT palette onto the form. Go into the code editor and edit the method as shown below:

```
void button1_MouseClicked(java.awt.event.  
MouseEvent event)  
{  
    // Display 'Hello world' when button is clicked  
    String greeting;  
    greeting = textField2.getText();  
    textField1.setText("Hello " + greeting);  
}
```

Run the Applet. Now click the button. If `textField2` is empty, the text in `textField1` will be set to **Hello**. Enter your name into `textField2`. Click the button again. When I do this, `textField1` says **Hello Huw**. It should greet you with your own name. The secret here resides in that greeting thing:

```
String greeting;
```

Here `greeting` has been declared to be a variable of the type `String`. A variable is, in effect, a container for data of the type specified. Think of a variable as an empty box. The `greeting` variable is a `String`-sized box so it can only contain `String` data. If you try to put an integer into it, you will cause an error. You can, of course, declare variables of other data types too. For example, this is how you would declare an integer (an `int` for short) called `mynumber`:

```
int mynumber;
```

The code in my rewritten method gets the text from `textField2` using the `getText()` method and assigns it to the variable `greeting`. You assign a value to a variable in Java by using the equals symbol which is the assignment operator:

```
greeting = textField2.getText();
```

Having assigned one value to the `greeting` variable you can subsequently assign different values by entering new text into `textField2` and clicking the button. That's why it's called a variable – because its value can vary.

Before displaying text in `textField1`, we add the data stored in the `greeting` variable to the end of the `String`, **Hello** using a plus (+) symbol. In Java, the plus symbol acts as the addition operator when working with numbers and the concatenation operator when working with `Strings`:

```
textField1.setText("Hello " + greeting);
```

Simple as it is, our little **Hello World** program has introduced most of the fundamental features of programming including events, methods, variables and operators. More next month!



## Using IE components: PART ONE

# Adding browsing to your apps



**PCPlus**  
**SUPER DISC**  
PATH: \prog1files\vbwkshp

**Dermot Hogan**  
reveals how IE  
components make it  
easy to add Web  
functionality even  
to simple programs

It wasn't Microsoft that sunk Netscape. It was the fact that you couldn't (and still can't) 'componetise' the Navigator browser. True, there were one or two other factors as well: lack of Dynamic HTML (DHTML), more bugs than the average dog has fleas... and the unfortunate (for Netscape) circumstance of Microsoft distributing about 100 million copies per year of Internet Explorer – free with every PC whether you liked it or not.

But why didn't AOL, for example, use Navigator as the core component of its software? Fundamentally, it was impossible to embed a Navigator browser component in the AOL package. Netscape had made a design error in not building component technology into the core software. And it isn't easy to correct a mistake like that. In spite of owning Netscape – a singularly strong incentive to use Navigator, you would have thought – after a couple of years AOL still uses Internet Explorer components as the core of its software.

In passing, it's also worth noting that the next version of Navigator to emerge

(see [www.netscape.com](http://www.netscape.com)) will be version 6. The story goes that when Netscape made the source of Navigator freely available, it was in such a shambolic state that Mozilla (the organisation tasked with supporting it) called this version 5, buried it in a locked room and decided on a complete re-write to be called version 6. A year and a half after Microsoft's version 5 browser, Navigator 6 is now in beta (and looks pretty reasonable, too). Not everything in the world of software can be put down to Microsoft's evil machinations. Accidents, bad decisions and simple incompetence also figure. **PCP**



**Dermot Hogan**  
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**PCPlus**

**NEXT MONTH**

Next month, I'll be showing  
you how to use DHTML Edit  
control in more detail

## ➔ Browser controls

Here we look at some of the components available for adding browsing to your applications

There are several varieties of Web controls available from the simple browser to FTP and HTTP protocol controls. The first one I've used is in 'Microsoft Internet Controls' selected from the Components menu. This turns out to be just one control – the WebBrowser. The WebBrowser is a cut-down version of Internet Explorer and while it's fairly basic, it's pretty good for displaying almost any HTML page. The key method is 'Navigate' – all you need to do is point it to the URL in question:

```
wb.Navigate "http://www.pcplus.co.uk"
```

You can try this out in the project InternetControls on the **SuperDisc**. All you have to do is be online and you should get the page displayed.

However, a more interesting control is the DHTML editing control. This enables you to edit, access and generally fool around with plain old HTML text and the associated Domain Object Model (DOM) of DHTML from within Visual Basic. The control, DHTMLEdit, is similar in style to the familiar Rich Text Edit control, except that it's used for DHTML instead of text.

DHTMLEdit comes as standard with Internet Explorer 5 (IE5), so if you've got IE5 installed, just select the DHTML Edit Control for IE5 in the Components dialog box to make the control usable in Visual Basic. Once you've done this, you can use the control in a similar manner to the plain old WebBrowser control by using the LoadURL method:

```
de.LoadURL "http://www.pcplus.co.uk"
```

But how does the edit control know to just display the document and not edit it? This is done by setting the BrowseMode property. Setting it to True makes the control work just like the IE5 browser – you can surf the Web from your Visual Basic program if you really want to. On the other hand, setting BrowseMode to False puts the control into 'edit' mode and you can then interact with the DHTML text in the window as you would in a text editor. There are differences, of course. You can add scripts, say, to the DHTML text and these can lead to errors as they are executed. Since the control is hosted in a Visual Basic environment, you can trap these errors easily and decide what to do.

If you want to edit and generally mess around with text in an edit control, just loading a URL isn't what you need. You need to load the source document from disk using the LoadDocument method. This takes two arguments. The first is the file name (qualified by the path) of the file you want to load. The next is an optional Boolean value that, if set to True, opens a file selection dialog box.

You have to be a little careful in loading a file for editing. Because it's DHTML, it is essentially a program and so it can be doing all sorts of other things while you think it's initialising. The actual loading is synchronous, but immediately after the loading of the file from disk has completed, the DHTML control returns to the statement following the LoadDocument method. The control then continues to parse the document and initialise the DHTML DOM structures. You have to check for a completion flag, Busy, before continuing:

↓ When you put the DHTMLEdit control into edit mode, there are a number of standard editing commands already available. CTRL-T indents a paragraph while CTRL-L over a URL displays information on the URL itself.



```
de.BrowseMode = False
de.LoadDocument App.Path, True
While de.Busy
DoEvents
Wend
```

You can access the source text of the DHTML displayed in the control using the DocumentHTML property but, just as usefully, you can also edit this string in Visual Basic and poke it back in the document. Here, I've changed some red text in the file 'test.htm' to green:

```
s = de.DocumentHTML
i = InStr(s, "red")
t = Left(s, i - 1)
t = t & "green"
t = t & Right(s, Len(s) - i - 2)
de.DocumentHTML = t
```

One last comment on this – you may notice that while manipulating DHTML in Visual Basic is like falling off a log, manipulating plain text is plain horrible. In these circumstances, you might wish Visual Basic had Perl's string handling facilities. Dream on.

## ActiveX documents

I've just used Visual Basic to host an IE5 browser, but is it possible to do things the other way round? As I showed you a couple of columns ago with the Outlook mail program, it's not only possible to program Outlook with VBScript, it's also possible to embed an Outlook component inside a Visual Basic program. One aspect of the COM architecture is that components can be hosted in several types of 'containers'. You don't have to stick to the container you first thought of. It so happens that Internet Explorer itself is also a good container for hosting COM objects, especially ActiveX controls. It also turns out that you can get Visual Basic to create projects that are easy to host inside Internet Explorer. These are called 'ActiveX documents'.

Before I launch into ActiveX documents, just a word about one of Microsoft's less successful marketing exercises. The term ActiveX was introduced a few years back when Microsoft saw the light about the Internet and, well, panicked.

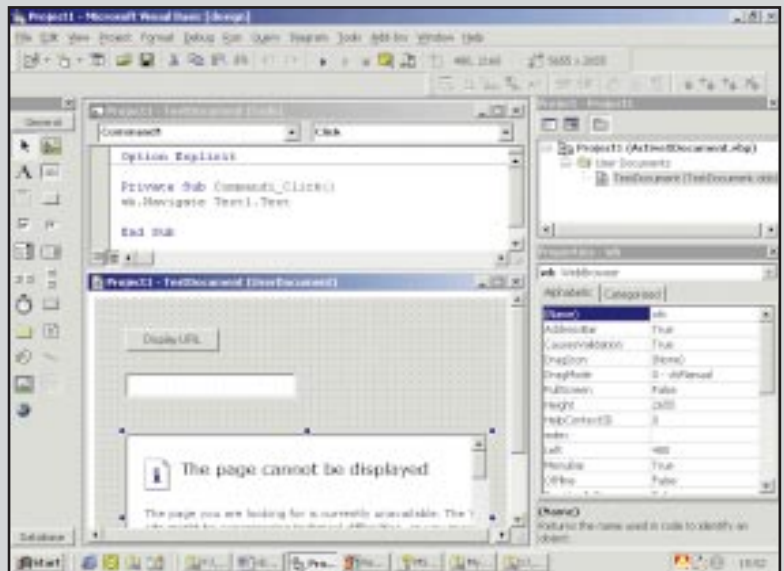
As with hindsight it was wise to do – the Internet is increasingly becoming the sea in which everything sinks or swims. A stream of Internet applications, architectures and marketing gobbledegook spewed out of Redmond. And one was ActiveX. Essentially, Microsoft tried to peddle the idea that there was a new type of COM object specially suited to the Internet, called ActiveX. The purpose of this was to try to do down Java applets and get everyone to use Microsoft Internet technology.

In the event, Java applets largely fizzled, though the language itself continues to grow. There was never much that could be usefully done by a bouncing head. But correspondingly ActiveX objects had one or two problems associated with them that Microsoft has never solved. They can be extraordinarily efficient at delivering viruses, for example, and there is no way on earth that I would download a page with an ActiveX control on it that I didn't know came from the hand of my grandmother. And even then I'd be suspicious.

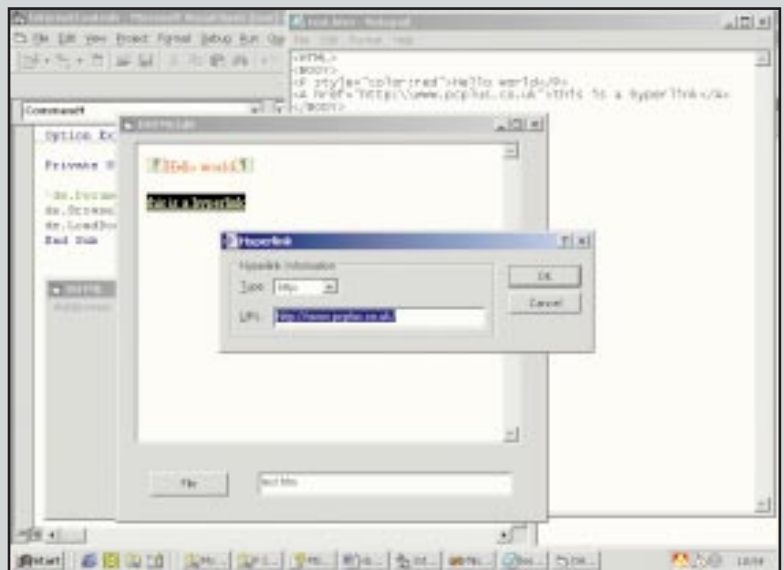
The upshot is Microsoft no longer mentions ActiveX much, with the emphasis now being on COM+. You can still find ActiveX – hence the term ActiveX documents – though Microsoft tends to use the term 'active document'. An active document is a Visual Basic program which is hosted in a Web browser.

You can create an active/ActiveX document by clicking on the 'ActiveX Document Exe' icon in the New Project menu. In the Project pane, you'll then see a UserDocument file called TestDocument under 'User Documents'. Click this and you'll see a standard looking Visual Basic form open up. Indeed it is a standard Visual Basic form to which you can add components in the usual way. In the project, ActiveXDocument, on the **SuperDisc**, I've added a Command, TextBox and WebBrowser controls. The Command button just gets a URL from the TextBox and sets the WebBrowser's Navigate property. This will, as above, cause the Web browser control to display the URL you typed:

```
Private Sub Command1_Click()
wb.Navigate Text1.Text
End Sub
```



↑ Here's an ActiveX document – a Visual Basic program displayed in an Internet Explorer browser. Here, the browser also displays a Visual Basic form which contains a browser control. A hall of mirrors?



↑ Creating an ActiveX document ('active document') is done by selecting the ActiveX Document EXE project type. From there on, it's much the same as building a standard Visual Basic application – just drop controls on the UserDocument form.

Now, if you just run the program from within Visual Basic you should be able to type a URL into the text box and on clicking the Display button, you'll see an Internet Explorer display a Visual Basic form with (just to be tricky!) an Internet Explorer Web Browser control in it. You can compile the active document to an EXE file in the usual manner, but if you try to run it nothing happens. If you look carefully, though, you'll see another file with a .VBD extension. To run the application, you have to open this file, TestDocument.vbd, in the Internet Explorer. This then loads the real application, ActiveXDocument.exe into the browser.

But to be honest, active documents aren't a great feature of Visual Basic. Visual Basic forms as they are currently constructed don't really fit that well into a browser environment. But, if you have a user population who just use browsers and want to slip in a Visual Basic application, then they are worth looking at.

There are at least two other ways of embedding Visual Basic in a browser. The first uses Visual Basic Web Classes which are chunks of Visual Basic running on an Internet Information Server and the second uses DHTML and Visual Basic to manipulate Windows controls. Both of these are a little more complicated than the technology I've looked at here, so I'll save them for another day.



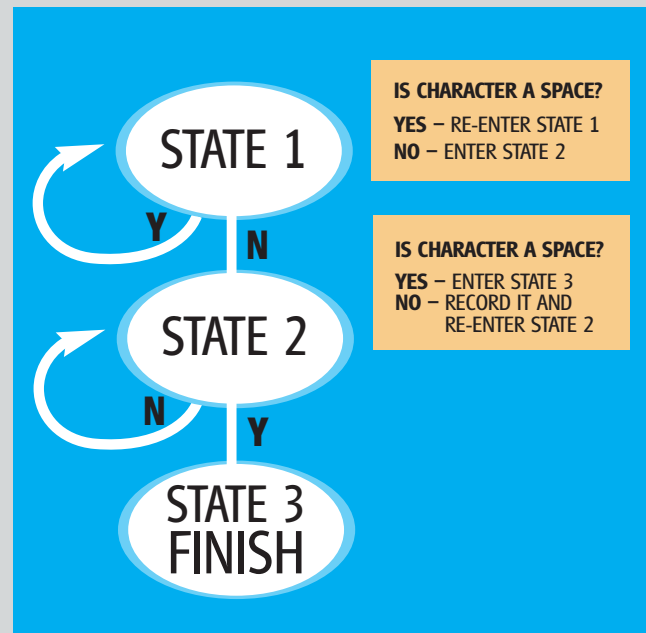
[www.pcplus.co.uk/forums/vb](http://www.pcplus.co.uk/forums/vb)





## WILF'S WORKSHOP

Data validation crops up all over the place. **Wilf Hey** makes it easier to understand



↑ A simple 'network' of three nodes suffices to create a Finite State Machine to read a word from a string. Looking character by character (as it enters State 1 or State 2) it strips away leading spaces, and stops when it comes to a space.

# In a right state

**H**ere in the Workshop, back in issue 165, we investigated Finite State Machines and their close relatives, Turing Machines. These are not engines or devices made of metal, but snippets of computer code that function automatically, producing a desired result by means of simple, well-defined steps. Each step results in specifying a new 'state', and this governs which simple instruction will be executed in the next step. A Finite State Machine (FSM) proceeds through the input, seizing a character or byte in each step until all characters have been exhausted – during which there may have been several states taken on at the end of each step.

You can think of an FSM as a black box: it has a particular set of functions. I used a traffic light as an example, which exhibits three different states, each depending on a change from the previous state.

A traffic light is a simple black box, varying its behaviour only in



PATH: \prog\wilf.htm

subtle ways – such as being in the two states with amber for a brief time compared to the time spent in green and red.

Imagine, however, a black box of the sort that controls a ticket turnstile. It must recognise several different input tickets, rejecting others. Some mechanisms of this type will operate differently – not only open itself, but perhaps return the ticket if it is a multi-trip type. In order to do this, the FSM that governs the behaviour of such a turnstile need not be much more complex; it usually needs more memory, in which it can store more instructions (comparisons, actions, and extra states).

The chief advantage of using an FSM is that it is easy to create, test and debug. Furthermore it is practically self-running: like a meat-grinder, you simply feed the FSM with appropriate input, and it works as it was designed. The human body is organised in such a

way that commonly employed behaviour – such as moving the leg muscles in a regular walking pattern – can be given over to ganglia, certain nerve clusters outside the brain. These ganglia are specialised, and near the muscles they control. In effect, the brain learns how to walk (in childhood) and then delegates this activity over to the simpler ganglia in later life. Even quite complicated tasks like driving home from the office can be performed at a non-conscious level – effectively by the human equivalent of a FSM, which will only rouse the conscious brain if something breaks the pattern.

Similarly, computer programs can be created more efficiently by delegating tasks to black boxes. And many of these black boxes can be FSMs, or slightly more sophisticated versions of the basic FSM pattern. This is where the Turing Machine comes in. Alan Turing had the insight (in the early post-war days of the digital computer) that if you provide a few minor features to the standard FSM, you have a pattern that can be used to compute anything you like. Actually, he was looking for (and found) a definition of what 'computable' meant, though even today there are prominent thinkers that doubt that everything a human can think or do is 'computable'; this argument – whether man's brainpower transcends computer brainpower in some fundamental way – divides the mathematical world even today. Are there tasks that can be defined (that is, clearly identified) but cannot possibly be simulated by computer? Furthermore,

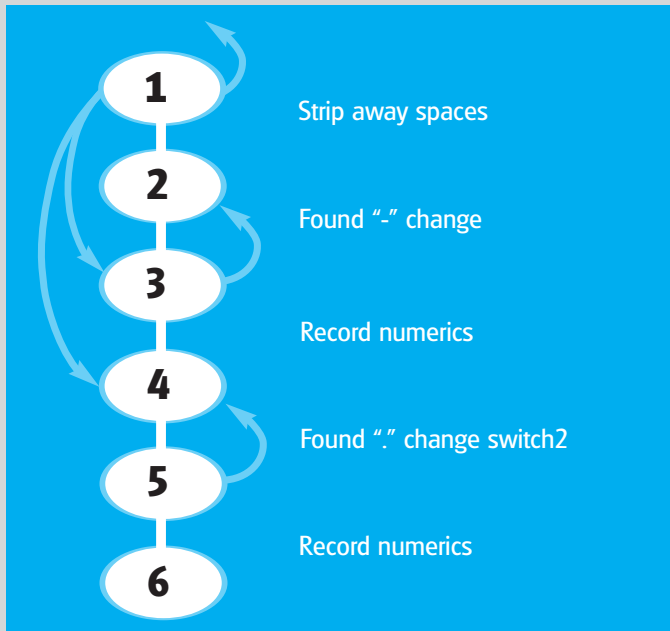
if any task can be defined in this way, it can be solved by a Turing Machine.

Essentially, a Turing Machine can do two things that a true FSM cannot: It can create output that it can read as its own input, giving it memory and the ability to alter its own behaviour to an extent; and it can deal with input in any sequence it decides – it can even go backward and look at an input it has already seen (and even change it).

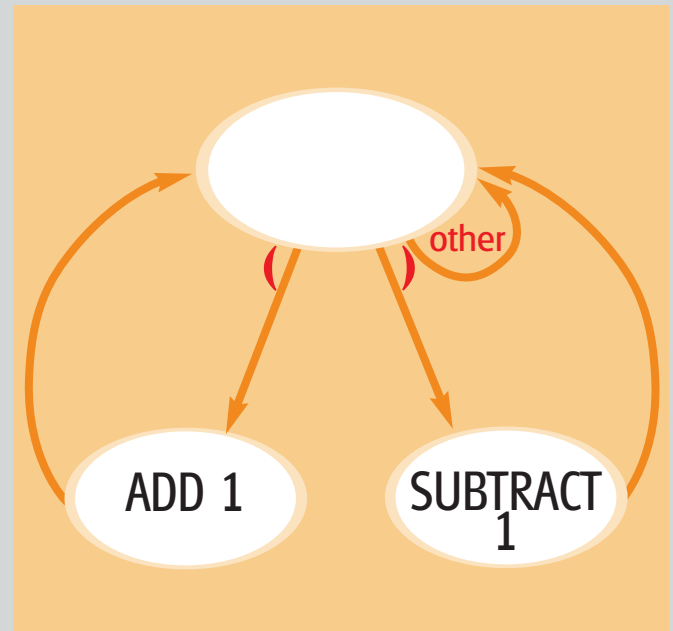
These two abilities promote a helpful (but essentially dumb) black box into a computer. As a matter of fact, the simplest Turing Machine, presented with input organised as a 'program' itself, is as 'powerful' as the top of the line Cray. (By 'powerful' I mean 'capable of solving a problem'; no promise about the speed, though).

Even the simpler form – the FSM – can be a powerful tool to get simple tasks done. One easy way to create an FSM is to analyse a task step by step, drawing a network with each step as a node. The decisions to be made, and the resultant actions to be performed, determine where there are lines between nodes. Each node, then, is called a 'state', and a line from one node to another indicates a change of 'state' – based on the calculation, or answer to a question, that necessitated that line drawn. A common flowchart is a fine example of an FSM.

Reader Graham Douglas contacted me with another excellent example of an FSM he built that performs a function that solves a tricky problem. His FSM



↑ This is a much simplified version of Graham Douglas' FSM. When it reaches State 6, the switches tell whether a quantity keyed is positive, and whether it is an integer. Note that finding erroneous characters will stop at State 6 early (not shown).



↑ A representation of an inadequate bracket-matching FSM. To correct it you would have to check, whenever subtracting, whether the result had become negative. Even then, the corrected FSM cannot be changed to handle two or more different kinds of brackets. That needs the extra power of a Turing Machine.

reads a string of input characters, and decides whether this string represents a legitimate numeric quantity. Not only that, it also decides what numeric form it takes.

For example, [402] is fine as an integer, but [-109.73], though valid for many purposes, is useless if an integer is expected. With this little FSM on hand, Graham is now able to write into any program a routine request for entry of a quantity: the FSM will happily check the input and report back whether it qualifies as a number, and will even report back to the main program what type of number it found. In some languages (various forms of BASIC for example) the programmer can call on the operator to key a quantity, and it goes directly into a variable of a chosen type: if you wanted an integer, you specified as much. The trouble with this approach is that if the operator keys an inappropriate value, the program spews out a syntax error message (not very friendly) and messes up any screen formatting in the process. Using a version of Graham's FSM, the programmer asks for a string to be keyed, passes it directly into the FSM, and looks at the result. The program can use its own error reporting if it doesn't like the number that was supplied.

Another useful side-effect of using this FSM is that the operator can key a word or phrase with a special meaning – such as HELP or ABORT – in response to a request for a quantity. The FSM will inform the main program that the string is not a valid number, and further

checks (for other expected replies) can be performed.

## Avoiding the pitfalls

There are some unexpected pitfalls when you first start to use FSM structures. In one program I had to validate that brackets were balanced in a string before further processing. I figured that this was an easy task for a FSM with a fancy little twist: at the beginning of the string, I called the state '0'. Then I built instructions to look at each byte in sequence. When I found a left bracket, I would add one to the state; when I found a right bracket, I would subtract one from the state. This is a bit of cheating, because the states were not really different nodes of a network – there were only two shards of code. I calculated that this would work well: if, at the end of the string, the state were zero, then the number of left brackets and the number of right brackets matched. If the program ended in some other state, there was an excess of one kind over the other.

However, I had missed an important point – one that was driven home to me on the very first test of the 'completed' routine by another programmer: she keyed in the string '))3((' and my inadequate FSM told her that the syntax of this bogus string was perfect. How did I correct my correct the FSM quickly to cover this sort of thing? Simple – insert a check to ensure that the state number never goes negative. If it does, there is a right bracket that precedes its left mate.

FSMs are especially helpful with syntax, which makes them ideal

tools for dealing with a human/machine interface. However, there are a few drawbacks to the standard FSM model. The one I find most tedious and irksome is that there are some times when it is desirable to move through the input in reverse, even if just for a moment. Having read a character and finding that it is irrelevant to the FSM, for example, it may prove desirable to 'unread' it so that it becomes available to the next routine – or user. In fact, some high-level languages have exactly that sort of capability built into them. A useful way around this problem is to have a one-character buffer for the input: when any routine (such as the FSM) accepts it for processing, it must set a flag that tells that the character has been used. The main program then routinely looks at the flag after control returns to it. If the switch is set, it reads a new character and resets the flag; if the switch is not set, the old character is still available.

## Making it easy

There are rare occasions when the restriction of going forward one character (or 'case') at a time would mean difficult re-programming somewhere. Let necessity be the mother of invention, and adapt your FSM for the purpose. The restrictions are there to simplify matters and make it easier on you – not to hobble you.

At the head of this Workshop there is a diagram of an FSM that carves off one word at a time from

a string. This is handy in programs that analyse electronic text, wherein a program can 'read' the text word by word, the same way a human does. As we explore computer simulation of human behaviour in the following months we will find many uses for the FSM (and close variants, like the Turing Machine). You can employ these constructs in your own programs to enforce organisation of simple tasks.

Now here's a different sort of problem: I have four integers in the range 1 to 21: Each can be anywhere in that range, independently of the others. How many different combinations of four integers can there be? How can you find out? This is a real programming challenge that has arisen out of one of the workshop projects in the last few months, and we shall take a stab at solving it (and problems like it) on the continuation of the workshop on this month's **SuperDisc**.

Next month, we'll be looking at building an automaton – part program, part data (it depends on how you look at it) but able to function on its own. **PCP**

## Write in!

→ I'm always pleased to receive letters and e-mail with programming queries, ideas and opinions. As a strict rule I can't reply directly with personal one-to-one programming advice, but your input could form the basis of a future Workshop. You can e-mail me at [whew@pcpmag.co.uk](mailto:whew@pcpmag.co.uk). Fax to 01225 732295 or write to Wilf's Workshop, PC Plus, Future Publishing, 30 Monmouth Street, Bath BA1 2BW.

# RANTS AND RAVES



## HuwCollingbourne

**Huw Collingbourne goes back to the 1980s, touches up his eyeliner and mascara and discovers that blonds really do have more fun...**

It was the long hot summer of 1994, back in the days when the cat was young and the mice were plentiful. I'd just upped sticks, moved out of the dilapidated grandeur of my luxury slum in NW5 and taken myself off to inhabit a remote and decaying mansion in the rural wastelands of North Devon. Through the windows I could see a rural idyll – nothing but fields filled with sheep stretching away to the far horizon.

Ah, bliss – I thought. Taking in a refreshing lungful of fresh country air (delicately perfumed with ripe cow muck), I decided the time had come to get away from the computer keyboard and make the most of countryside living.

The only trouble was, I couldn't find anything to do. It's amazing how quickly the fascination of watching sheep can wear off. I would have gone for long, walks. But, at that time, the dog was no more than a twinkle in his daddy's eye. And the cat didn't take kindly to my attempts to drag her along on the end of a lead.

And then, one fateful morning, the postman delivered a brown paper package containing a box of software. The software

turned out to be an adventure game. I am a long-time fan of text adventures but this, to my disappointment, was a graphic game. I decided at once that I'd hate it. Even so, with the sheep and the cat singularly failing to provide much in the way of intellectual stimulation, I determined to give the game a whirl.

It was a revelation. The graphics weren't

**“In the 70s and 80s you just stood in front of the mirror looking miserable and twiddling phantom knobs”**

of the clunky, brightly-coloured, cartoon-like variety that I was anticipating. Indeed, they were (as I later wrote in a review) “among the best-looking I've ever seen in a computer game.” That game was *Myst*. And, even though its screen resolution was rather low by modern standards (to allow for the limitations of 1994 computer hardware), the essential quality of the images remain as breathtaking today as they were back then.

I played *Myst* throughout the long, hot nights of that far-away summer. With the cat purring contentedly on my lap and great quantities of ice-cold Czechoslovakian lager readily to hand, it was one of the most enjoyable summers of my life...

### Myst opportunity

The makers of *Myst* were so proud of its graphics that it even put a documentary on the CD explaining how it created them. That's how I know that the remarkable landscape of *Myst* was generated using a 3D design package called *Strata Vision*. This was one of the most powerful and expensive 3D packages of the day.

Little wonder then that my flabber was well and truly gashed when I noticed that the latest version of this package, *Strata 3D*, was given away on August's **PC Plus SuperDisc**. What was even more surprising was that it wasn't even the 'star attraction' of that disk. In fact, it was tucked away among the 'also ran' products listed on the back of the CD case. How are the

mighty fallen, I mused wistfully!

Even though *Strata 3D* may no longer be at the cutting edge of 3D graphics, it's still pretty damn' impressive. The main limitation of the version provided on the **SuperDisc** is its lack of documentation. There are some useful tutorials on the *Strata* Web Site, but I personally would have liked a manual, too. Well, there are two ways to get hold of a *Strata* manual. Either you can become a computer journalist (which has the distinct advantage of letting you blag a manual for free but the disadvantage that it will also win you the contempt of all right-thinking people) or you can take the more honourable route and stump up £22 to buy a manual or £45 to get the manual plus a CD containing a few extra goodies and models. I made my choice early in life. Some people are born to be wild. Me, I was born to be cheap.

You could actually get quite a long way with this software without resorting to its manual, particularly if you already have experience with some other 3D package. However, the manual is a definite bonus. Its 500 pages guide you through all the main functions of the program though, it has to be said, in a pretty dry and lacklustre manner. The manual also doubles as a guide to the more powerful Pro version of the software. It's frustrating to keep landing on chapters on interesting graphic effects such as fire and smoke, the ability to corrode materials such as weather-blasted landscapes only to discover that these features are in the Pro version only.

Naturally, as a mean, penny-pinching computer hack, I consider it my solemn duty to scrounge the Pro software at my earliest opportunity. In the meantime, I reckon the standard software should be sufficient to get me started on my own little world of *Myst*. I've already stocked up on plenty of ice-cold Czechoslovakian lager. Maybe instead of calling it *Myst*, I should call my version *Py...*

No, no, forget I even mentioned it.

### Back to the future

Let's now go back another half a decade before *Myst* to the days when the youthful Collingbourne wouldn't dream of facing the day before plastering on half a pint of black



↑ Amazing what you can find hidden in the dim recesses of the **SuperDisc**. This is *Strata 3D* – a program that helped create the world of one of the all-time great games.





eyeliner and adding a pound or two of gel to his elaborately bleached hairo (and lovely I looked if I do say so myself!). Yes, that was the late 70s and early 80s. At that era, the soundtrack of my life was provided by techno-rockers such as Kraftwerk, Orchestral Manoeuvres in the Dark (OMD), the Human League and Gary Numan.

Earlier generations of pop fans would strut their stuff with a phantom guitar in front of their bedroom mirror. In the 70s and 80s you just stood in front of the mirror looking miserable and twiddling phantom knobs.

These days, an average home PC has more sophisticated musical capabilities than the most powerful synthesizers of twenty years ago. The trouble is, they don't sound very synthetic. Play a piano on your PC and it sounds depressingly like a real piano. Whatever the limitations of the synthesizers of the 80s, at least they sounded truly synthetic. And, after all, isn't that the whole point of a synthesizer?

I am not the only person who yearns for those far-off days. Which is why the music software company, Steinberg, regularly releases software simulations of ancient synths. The latest of these is the Waldorf PPG Wave 2v. This is a faithful reproduction of an early 80s synth complete with banks of onscreen knobs to twiddle. There are knobs to adjust envelopes and modifiers and to set the attack, sustain and release of the notes played. Goodness knows what all that stuff means. What I do know is that the resulting noises sound pleasingly retro. And to my jaded ear, there is nothing quite so futuristic sounding as an ancient synthesizer.

To use the PPG Wave 2v, you need to have a VST 2.0 compatible application (I used Cubase VST 3.7). The synthesizer can then be loaded as a plug-in. Ah, it's made me feel nostalgic for the old days. Now where did I put my mascara?

## Going through the motions

After wasting the last few days reliving my frustrated pop star fantasies (and pondering on that great unanswered philosophical conundrum: 'Are friends electric?'), I was eventually forced back to reality by the editor's tediously

unimaginative demands that I write about some serious software for a change. And if it happens to have some connection with the present century, that would be a bonus.

Oh well, the Internet is serious, isn't it? Web sites are serious. And Adobe's Web site graphics program, LiveMotion, is bang up to date. The only thing that remains to be determined is whether it's any good. Wiping away the last few smears of mascara, I settled myself in front of my keyboard and attacked the program with an almost professional degree of seriousness.

One of LiveMotion's specialities is the creation of animated effects. It can generate these either in the form of animated GIF graphics or in Macromedia's Flash (SWF) format. Personally, I don't much care for Web animations in any format, so none of this interested me greatly. LiveMotion can also be used to create static graphics for building user interfaces with panels, dividers, banners and buttons. This stuff was of more interest.

Currently my favourite Web graphics program is Macromedia Fireworks. This too can be used for creating GIF and Flash animations, as well as panels, dividers, banners and buttons. Fireworks has more (or more easily accessible) image processing tools than LiveMotion, to let you adjust and optimise graphics. On the other hand, LiveMotion goes to greater lengths than Fireworks to simplify the creation of slick 'rollover' animations. Rollovers are normally applied to buttons. If a button glows or seems to click down when your mouse passes over it then it's a rollover.

LiveMotion has a dedicated rollover palette in which you can assign the various rollover 'states' of a button (such as Normal, Mouse-Over or Down). You can also create custom states so that a button can be linked to some other graphic or text on your Web page to produce a 'remote rollover'. When you click a remote-rollover button, it is not only the button itself that changes appearance. A graphic or text elsewhere on the Web page is also changed. This is great if you want to display product pictures or help text when buttons are pressed.

While LiveMotion has a lot of things going for it, the one thing I'm not so keen

on is the user interface. Curiously enough, Adobe seems to think this is one of its major strengths – "the familiar and intuitive Adobe user interface", they call it! Familiar if you happen to be intimately familiar with other Adobe products, maybe. Otherwise, 'completely non-standard' would be a better description. Intuitive in the sense of its dictionary definition – 'knowing things instinctively'. As I know instinctively that I won't be able to make head or tail of this damned Adobe user interface!

But maybe I'm being unreasonably grouchy. It's just that time of life, I guess. Wait a minute though. I'm sure I'll feel a lot better once I put on this old Gary Numan record and... well, I'll be blown, isn't that a bottle of peroxide I see lurking there in the bathroom cabinet? **PCP**



huwcol@aol.com  
www.treetops.u-net.com

## Contacts

### FURTHER READING

If you need to contact any of the suppliers of the products mentioned here take a look at the following resources

**STRATA 3D (FREE WITH PC PLUS, AUGUST 2000)**  
**STRATA 3D MANUAL £22**

Once upon a time, one of the top professional 3D modelling and animation programs. And still pretty neat to this very day.

www.strata.com  
www.3d.com  
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## CONTENTS



**3dfx Voodoo5  
5500 AGP**  
62



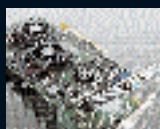
**Absolute Multimedia  
GeForce 2**  
62



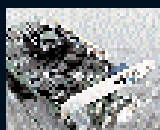
**Asus V7700  
AGP Deluxe**  
63



**ATI Radeon 256  
64MB DDR**  
63



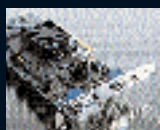
**ATI Rage Fury  
Maxx**  
64



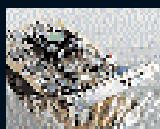
**Creative 3D Blaster  
GeForce 2 GTS**  
64



**Hercules 3D Prophet  
II GTS 32MB**  
66



**Matrox  
G400 Max**  
66

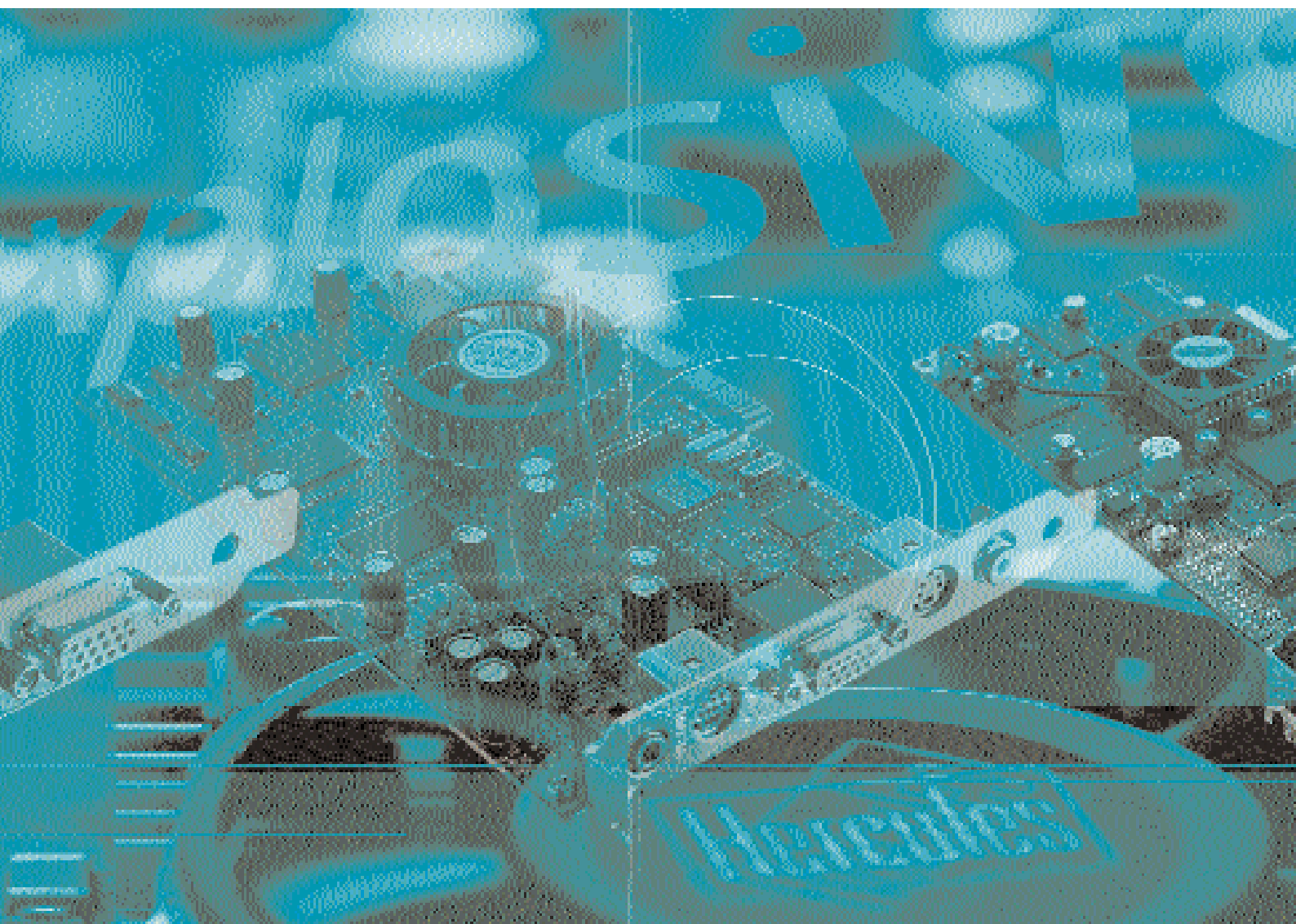


**MSI MS  
Starforce 8815**  
67



# Next generation graphics

**Tony Browne** takes a close look at nine of the very latest graphics cards and finds out which are the top performers



**T**he graphics card market is a funny old place to live; one minute you're sitting pretty in the penthouse, the next thing you know you're languishing in a dank basement searching desperately for the lift. Just take a look at S3, ATI and 3dfx, for example. A few years ago, S3 and its Virge and Trio chipsets ruled the world, then it lost its way and let ATI get a foot in the door.

ATI wasn't going to let that kind of opportunity go to waste and soon took the market by storm with its strangely named Expert@work and Expert@play video cards early in 1998. They were both acceptable performers, but their most attractive features were their prices, which proved hugely popular with PC makers. ATI then went on to produce chipsets for laptops, which sold by the truckload despite not being the fastest around or having the best picture quality.

If you were a games player in those days, the best way to boost your frame rates was to buy a dedicated 3D add-on card. And 3dfx used to have the 3D add-on accelerator market sewn up with its Voodoo2 PCI-based card. Then again, the only real competition

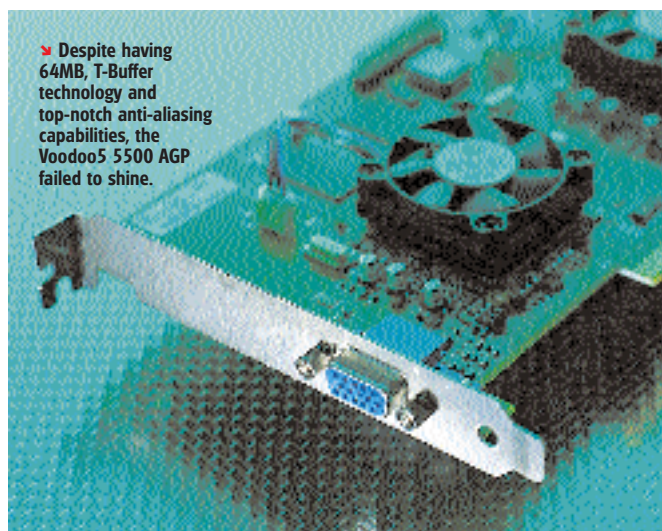
at the time was the PowerVR range, which were poorly received by the buying public, despite being technically advanced.

3dfx's next step was the logically titled Voodoo3. Thanks to the fact that it was capable of both 2D and 3D – so not just an accelerator – everyone thought it would sell like charcoal on a sunny Sunday morning. And it did do quite well until nVidia spoiled the party by introducing the widely licensed TNT (Twin Texel) chipset. TNT begat TNT 2, which itself evolved into the original GeForce chipset with its revolutionary GPU (Graphics Processing Unit) and super-fast DDR (Double Data Rate) memory. And that brings us neatly to where we are now in the world of video cards.

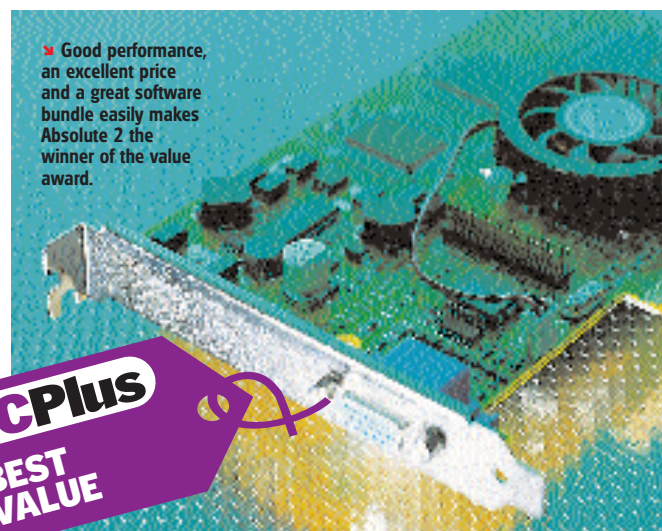
Very recently, nVidia has launched GeForce 2, which builds on the strengths of the original GeForce chipset. To combat this, 3dfx has launched Voodoo version 5, and ATI has released the Radeon – a card that owes little to previous ATI boards. **PC Plus** has gathered nine cards with the latest chipsets and tested them to destruction. Which of these is the fastest and will it stand up to forthcoming chipsets from nVidia, Videologic and Matrox? Let's find out...







Despite having 64MB, T-Buffer technology and top-notch anti-aliasing capabilities, the Voodoo5 5500 AGP failed to shine.



Good performance, an excellent price and a great software bundle easily makes Absolute 2 the winner of the value award.



## 3dfx Voodoo5 5500 AGP

**PRICE** £249 **EX VAT** £122 **SUPPLIER** 3dfx  
**PHONE** 01753 502800 **ONLINE** www.3dfx.com

3dfx seems to have lost its way recently, but is version five of Voodoo technology better than GeForce 2?

**T**he new 64MB Voodoo5 5500 is the second most powerful card in 3dfx's latest video card range and it is based around two 3dfx VSA-100 chips. These work in parallel and support the card's many features such as the much talked about T-Buffer and FSAA (Full Screen Anti-Aliasing) capabilities. The T-Buffer offers enhancements over normal video technology – such as improved image quality – while the built-in FSAA hardware gets rid of those annoying jagged edges often seen in close up 3D gaming scenes. These aren't so much of a problem in games such as Quake, but they do matter in driving and flight sim gameplay.

All of these features fit on the longest card I have ever seen. It reminds me of a full length, first generation SoundBlaster. Another strange fact about the Voodoo5 5500 AGP is that it needs a direct power supply; this is supplied by a power cable usually used for one of your computer's drives. The reason? Some motherboards simply can't supply enough power to feed the Voodoo5 5500 via their AGP ports.

With this space- and power-hungry configuration you might expect the 5500 AGP to be a bit of a speed demon. Sadly, this isn't the case. While 3dfx should be congratulated on its work on FSAA, the rest of the card's performance can only be described as dire. During testing with 3DMark2000 it was plain to see that this card isn't as good as the GeForce 2 or ATI

**Tested on**  
PII 350, 128MB, 20GB hard drive, Win98

Radeon offerings. Playback in the 3DMark2000 Game 2 benchmark was noticeably jerky – the card plainly had trouble producing enough frames for smooth playback. To add insult to injury, the aging Matrox G400 Max even beats the Voodoo5 5500 AGP if you directly compare Videomark2000 scores.

To say that this card is a disappointment would be a huge understatement. At a recent meeting of 3dfx PR people we were told "never mind the frame rates, feel the quality of the anti-aliasing and T-buffer technology". These characteristics are all very well, but they can't disguise the mediocrity of the card as a whole when judged by that most common of gamers yardsticks – frames per second.

### PCPlus Verdict

#### 3DFX VOOO5 5500 AGP

- |                              |                            |
|------------------------------|----------------------------|
| <b>✓ FOR</b>                 | <b>✗ AGAINST</b>           |
| → Anti-aliasing capabilities | → Poor overall performance |
| → T-buffer technology        | → Price                    |

Specification.....	8
Quality .....	7
Performance.....	7
Value for money .....	8
<b>OVERALL .....</b>	<b>7</b>

## Absolute Multimedia GeForce 2

**PRICE** £200 **EX VAT** £170 **SUPPLIER** Absolute Multimedia  
**PHONE** 01635 278587 **ONLINE** www.absolutemm.com

Absolute Multimedia has produced an acceptable performer in the GeForce 2, but look at that low price

**F**or those who don't know, Absolute Multimedia was born out of the ashes of Diamond and Orchid, shortly after S3 took over the latter. From what I have seen (from an entry in the sound card roundup a couple of months ago and from a Brief Encounter review of an MP3 player) this new company seems to pride itself on selling innovative products at low, low prices. Let's see if this is the case with its latest video card, the GeForce 2 GTS.

I received this card in a brown wrapper, but it wasn't because they didn't want the postman to know what I'd been ordering – it was just a pre-production version that arrived ages ago. Consumer packaging is now in place, so I didn't mark the card down for a lack of presentation.

As you can gather from the name, this card is based on nVidia's flagship consumer graphics chipset GeForce 2. And as you can see from the results, this chipset is quickly becoming the de facto standard for fast graphics, and Absolute aren't the only ones to jump on the GeForce 2 bandwagon. Just like the other GeForce 2 cards here, this features nVidia's Shading Raster technology for better picture quality, plus a 2nd Generation Hardware Transform and Lighting engine for better 3D modelling representation.

In this instance, the card from Absolute wasn't the quickest of the GeForce 2 boards, but it still comfortably beat the 3dfx Voodoo5 and ATI Rage Fury Maxx in most of

**Tested on**  
PII 350, 128MB, 20GB hard drive, Win98  
**Extra information**  
Comes with four free games, three of which you can choose yourself from a specified range

the 3Dmark and OpenGL tests. The picture quality is also pretty sharp.

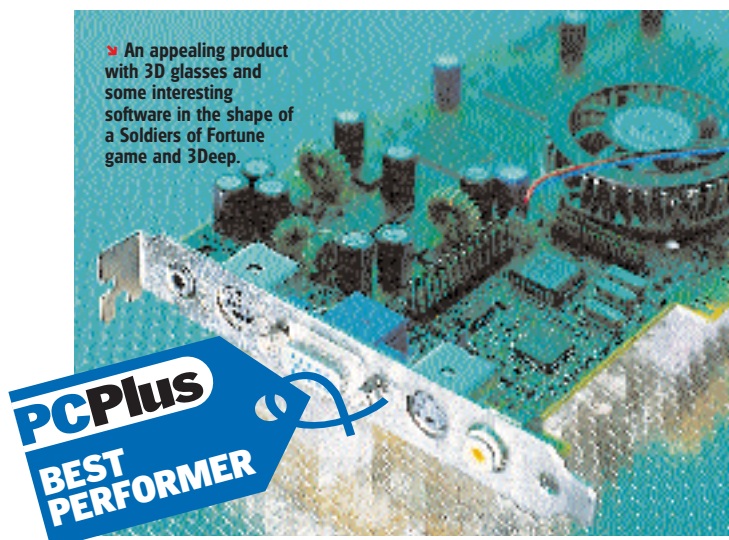
Setting up the card wasn't the easiest task, although Absolute has tried to make the driver installation process as painless as possible. The idea of having an AVI video showing you exactly how to install the card is also good, but I had to reset the machine several times before the PC Plus reference machine noticed that it had a GeForce 2 card in it. This minor problem aside, I feel that Absolute Multimedia has produced a good card; it may look identical to Creative's offering, but it's a lot cheaper and comes with four full free games.

### PCPlus Verdict

#### ABSOLUTE MULTIMEDIA GEFORCE 2

- |                      |                      |
|----------------------|----------------------|
| <b>✓ FOR</b>         | <b>✗ AGAINST</b>     |
| → Free games galore  | → PDF manual on disc |
| → Cheapest card here |                      |

Specification.....	8
Quality .....	8
Performance.....	8
Value for money .....	9
<b>OVERALL .....</b>	<b>8</b>



## Asus V7700 AGP Deluxe

**PRICE** £292 **EX VAT** £249 **SUPPLIER** Insight  
**PHONE** 0870 700 7072 **ONLINE** [www.asus.com.tw](http://www.asus.com.tw)

**A speedy GeForce 2 card packed with extras from a company better known for other computing products**

**T**he inclusion of both MSI and Asus in this test seems to indicate that motherboard manufacturers are slowly moving into the graphics arena, but Asus has regularly had a presence in this market. This time around, it comes in the form of a GeForce 2 GTS-based card that uses the popular GeForce 2 chipset from nVidia. Highlights include dual texture pixel-fill capability and four hyper texel graphics pipelines. These features add up to more efficient shifting around of graphic/texture information, giving you more frames per second. This card, like all the cards here, also supports 2x and 4x AGP write speeds, and comes with a healthy 32MB of DDR (Double Data Rate) memory. This is faster than the standard Single Data Rate RAM found in older first-generation GeForce cards.

The Asus AGP V7700 comes in several different configurations and this is the top-end 32MB model. A 64MB version should also be winging its way to these shores soon. The Deluxe part of the name is derived from the fact that this card comes with some fancy 3D glasses, and Video-in and TV-out capabilities. This is backed up by the four connectors at the rear of the card, labelled VR-Out, S-Video in, S-video out, and Comp out. You get all the cables you need to use these connectors as well.

Installing the card and loading in the drivers is simple enough

**Tested on**  
PII 350, 128MB, 20GB hard drive, Win98  
**Extra information**  
Comes with 3D glasses

thanks to a decent manual and stable drivers. As a result of a very decent hardware performance, this card did well in all the tests, posting results that were consistently near the top in every benchmark.

In the box, you will also find a Soldiers of Fortune game, which is more than most of the others here offer. Another notable extra is Asus SmartDoctor, a program that looks after the card's vital signs, such as its temperature. This utility will prove extremely useful for those hardcore gamers who like to overclock their video cards. You also get a decent manual. Some might consider this card to be a bit on the expensive side, despite the great performance and all the extras.

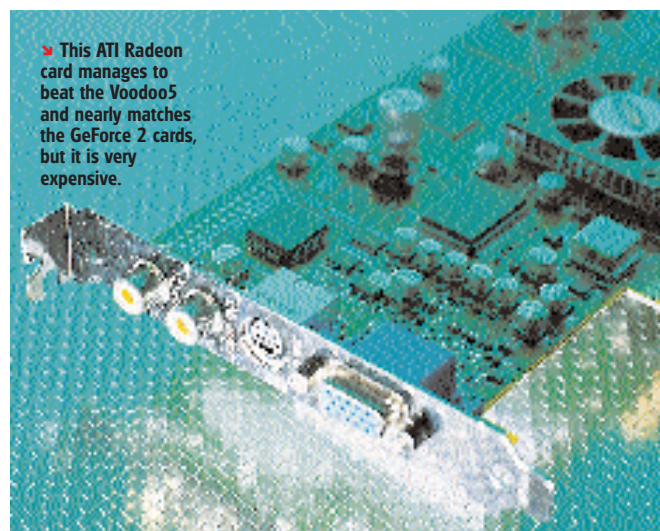
### PCPlus Verdict

#### ASUS V7700 AGP DELUXE

**✓ FOR**  
→ A good range of features  
→ Performance  
→ Extras

**✗ AGAINST**  
→ A bit expensive

**Specification** .....9  
**Quality** .....8  
**Performance** .....9  
**Value for money** .....8  
**OVERALL** .....9



## ATI Radeon 256 64MB DDR

**PRICE** £299 **EX VAT** £254 **SUPPLIER** ATI UK  
**PHONE** 01628 533115 **ONLINE** [www.ati.com](http://www.ati.com)

**With the Radeon, ATI finally has the firepower to take on the might of 3dfx and nVidia**

**O**ne of the world's most awaited cards is finally out and I have to say that the wait has been worth it. ATI's new card

is the Radeon 256 and it is powered by the enigmatically named Charisma Engine. This geometry engine can handle 30 million triangles per second, beating the GeForce 2's statistic of 25 million. When it comes to features, the Radeon matches most of the GeForce 2 capabilities and then adds some more such as Vertex skinning and key frame interpolation. For those readers not into 3D modelling, these terms simply mean smoother character animation and less noticeable flicker while rendering scenes.

The generic appearance of this board belies its impressive graphical abilities. At the back of the pre-production board that I tested, there are connectors for Comp in/Comp out and S-VHS video out – great for video-editing enthusiasts. On the card you'll see four DDR memory chips making a total of 64MB of video RAM. A single fan cools the whole board, implying that the ATI Radeon doesn't need as much cooling as its Rage Fury Maxx stablemate. Fitting the card was simple enough and the drivers were recognised immediately by the PC Plus reference machine. ATI's new driver disc now makes upgrading from one ATI card to another very simple, as all the drivers for the range are on one disc.

**Tested on**  
PII 350, 128MB, 20GB hard drive, Win98  
**Extra information**  
Comes with DVD player

Most readers will be interested in the performance of this card; is it as fast as the GeForce 2 and Voodoo5 cards? The answer is an emphatic 'Yes'. ATI has definitely produced a card here that can live with the current competition, but it's only fair to point out that it does include twice the RAM of the GeForce 2 cards and that situation looks set to change in the very near future.

In most of the 3DMark2000 tests, the Radeon either matched or exceeded the GeForce 2 cards, and the latest 3dfx card is simply blown out of sight by Radeon. The Radeon is definitely a card to consider if you're after the ultimate in performance, but it will burn one heck of a hole in your wallet.

### PCPlus Verdict

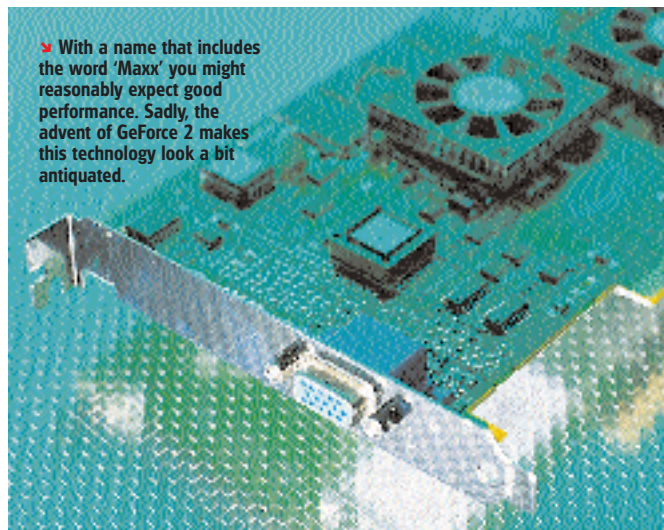
#### ATI RADEON 256 64MB DDR

**✓ FOR**  
→ Fast Performance  
→ Lots of 3D features

**✗ AGAINST**  
→ Very expensive  
→ Drivers aren't mature

**Specification** .....9  
**Quality** .....8  
**Performance** .....9  
**Value for money** .....7  
**OVERALL** .....9





✱ With a name that includes the word 'Maxx' you might reasonably expect good performance. Sadly, the advent of GeForce 2 makes this technology look a bit antiquated.

## ATI Rage Fury Maxx

**PRICE** £189 **EX VAT** £161 **SUPPLIER** ATI UK  
**PHONE** 01628 533115 **ONLINE** www.ati.com

ATI's older card has dual graphics accelerators to increase fill rates, but is it quick enough?

**T**he second of the ATI cards is the Rage Fury Maxx, a card that only a few weeks ago was the flagship of the ATI

graphics card line-up. This mantle has now passed to the ATI Radeon, which is also included in this test. The angrily named Rage Fury Maxx shares the Radeon's figure of 64MB of video memory, which comes in the now standard DDR (Double Data Rate) configuration, but there the similarity ends.

Instead of using the new feature-packed Charisma Engine, the Rage Fury Maxx relies instead on two ATI Rage 128 Pro graphic accelerators linked together in a type of Voodoo 2 SLI type combination. This means that like the 3dfx Voodoo5 5500 AGLP this board needs twin cooling fans.

Although this card was launched to take on the might of the original GeForce chipset, it still has some neat features that make it worth considering if you can't stretch to GeForce 2 prices. AFR (Alternate Frame Rendering) produces alternate frames without waiting for the other accelerator. ATI claims this helps the Maxx deliver higher game frame rates. A maximum fill rate (otherwise known as textured pixels rendered per second) of 500 Megapixels per second is also quite impressive.

The trouble is that now the GeForce 2 cards are on the scene the Rage Fury Maxx is simply outclassed. Even though the

**Tested on**  
PII 350, 128MB, 20GB hard drive, Win98  
**Extra information**  
Comes with DVD player

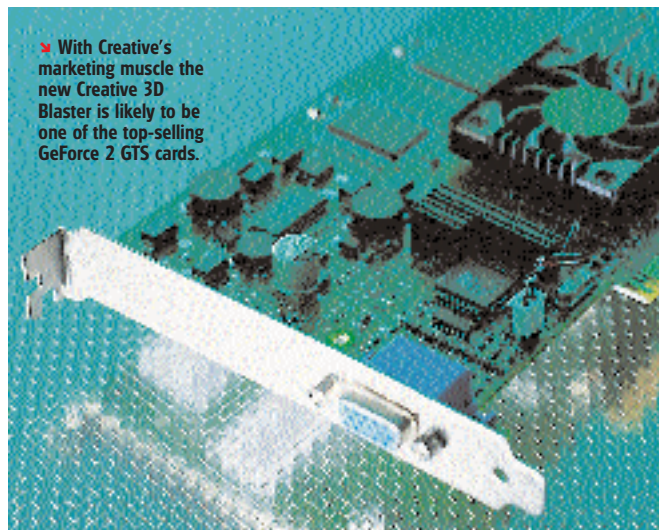
GeForce 2 cards on test only had 32MB of memory, compared to 64MB on the Rage Fury Maxx, the ATI card was beaten in most of the tests. One of the good points, however, is that this card did quite well on the VideoMark2000 test, posting results of 727 on quality, 185 on performance and 511 on features. Some of these high scores could be down to the fact that this card has some incorporated DVD movie playing hardware. This, of course, negates the need for a separate DVD card. In the box all you get are some decent but not outstanding instructions. Finally, I would have liked to see at least one game supplied with this card, but ATI did not oblige.

### PCPlus Verdict

#### ATI RAGE FURY MAXX

✓ **FOR** → Reasonable price  
✗ **AGAINST** → Superseded by the ATI Radeon

**Specification** .....7  
**Quality** .....8  
**Performance** .....7  
**Value for money** .....7  
**OVERALL** .....7



✱ With Creative's marketing muscle the new Creative 3D Blaster is likely to be one of the top-selling GeForce 2 GTS cards.

## Creative 3D Blaster GeForce 2 GTS

**PRICE** £250 **EX VAT** £213 **SUPPLIER** Creative  
**PHONE** Online only **ONLINE** www.europe.creative.co.uk

The old GeForce card from Creative was excellent, and the new GeForce 2 model is even better

**C**reative has a great history in computer graphics – it was one of the first areas the company branched out into after launching the famous SoundBlaster range of sound cards. Creative, like its old rival Diamond, tends to license technology, and so is happy to put its name on the fastest chipset available at the time. This has meant that in the past I've tested Creative cards using nVidia (TNT and GeForce), 3dfx (Banshee) and S3 (via its Savage chipset) technology.

As you'd expect, the Creative 3D Blaster GeForce 2 GTS replaces the 3D Blaster GeForce 256 Annihilator PRO as the flagship model in Creative's video card line-up. The 3D Blaster GeForce 2 GTS looks remarkably like the Annihilator PRO and it's no surprise, then, that the cards from MSI and Absolute also look identical. I was, however, a little disappointed that there are no connectors at the rear for connection to such items as televisions and flat panels.

As you can well imagine, the make-up of this card is pretty much standard fare for an nVidia GeForce 2 card. Changes to this card, compared to the older version, include nVidia Shading Rasterizer (NSR), which brings natural material properties such as smoke, clouds, and water to life via seven simultaneous pixel operations that deliver

**Tested on**  
PII 350, 128MB, 20GB hard drive, Win98

per-pixel shading in a single pass. Other highlights include improved second generation Transform and Lighting (T and L) and GPU (Graphics Processing Unit) engines.

The performance of this card wasn't the fastest overall, but as you can see from the results table it always came in the top half of the results. In the OpenGL test, using Quake III at a resolution of 800 x 600, it managed an impressive 48.3 frames per second. The picture quality was also impressive, though not as good as cards such as the aging Matrox G400 Max. You also get a game – Rage Rally – and some other useful software.

### PCPlus Verdict

#### CREATIVE 3D BLASTER GEFORCE 2 GTS

✓ **FOR** → The Creative name and quality  
→ Good performance  
✗ **AGAINST** → Drivers aren't the latest

**Specification** .....8  
**Quality** .....9  
**Performance** .....8  
**Value for money** .....8  
**OVERALL** .....8



Blue is the colour, especially if you're a fan of the impressive Hercules 3D Prophet II GTS card.

**PCPlus**  
EDITOR'S  
CHOICE

## Hercules 3D Prophet II GTS 32MB

PRICE £260 EX VAT £221 SUPPLIER Guillemot UK  
PHONE 020 8686 5600 ONLINE [www.guillemot.com](http://www.guillemot.com)

Have Hercules produced yet another GeForce winner in the shape of the 3D Prophet II?

The last time that I did a graphics card roundup (in issue 162) the GeForce-powered Hercules 3D Prophet DDR-DVI won me over by having the best performance results on test, just beating the similarly equipped Guillemot 3D Prophet. Is its successor the fastest here, I hear you cry? Well, thanks to the new GeForce 2 GTS chipset, this card is, of course, quick, but it's not the fastest on test. In one of the first tests – the OpenGL version of Quake III at a resolution of 800 x 600 with the settings on high – the score of 494 frames per second is shared by the AGP V7700 Deluxe from Asus. In the same game at a higher resolution, the score of 44.2 fps is fast, but not the winner. Moving on to the 3DMark2000 test, this card performed well, but yet again it was pipped at the post by the AGP V7700 Deluxe, meaning that Hercules has lost its performance crown – but only marginally. When it came to video quality, the Hercules 3D Prophet II GTS wasn't the best, but it certainly wasn't disgraced either.

One of the first things you notice about this card is its hue. Hercules has decided to go it alone, with both the 64MB and 32MB versions of the card coming in a lovely metallic marine blue. You may only see it for ten minutes when you first install it, but it's always nice to make a good first impression. This card is

Tested on  
PII 350, 128MB, 20GB hard drive, Win98

also longer than most of the other GeForce 2 cards here and sports an S-Video out port, which is something most of the competition lacks.

Installing the card was supposed to be straightforward according to the manual, but it took a few attempts on the PC Plus reference machine to get it running smoothly. When it was up and running, I was impressed with the image quality, especially when running VideoMark2000's blitter tests. To sum up, Hercules has produced a decent card which is fast, uniquely coloured and comes with S-Video out – all it needs now are some good games to test its abilities.

### PCPlus Verdict

#### HERCULES 3D PROPHET II GTS 32MB

✓ FOR  
→ Great performance  
→ Nice colour

✗ AGAINST  
→ No software  
→ Took a few attempts to install

Specification .....9  
Quality .....8  
Performance .....9  
Value for money .....8  
OVERALL .....9

With its innovative Dual Head technology, this Matrox card is great if you use two monitors at the same time.

## Matrox G400 Max

PRICE £158 EX VAT £135 SUPPLIER Matrox  
PHONE 01753 665544 ONLINE [www.matrox.com](http://www.matrox.com)

A good card, but sadly its superb picture quality isn't now enough for it to be recommended

Matrox seems to have been around for ages and yet the company has not been in a market-leading position for several years. It's not because the products haven't been up to scratch: the previous G400, G200 and even the cheap-and-cheerful G100 Productiva cards were all great at 2D, and they all shared brilliant picture quality – one of the company's many strengths.

Whatever the reason, you can't accuse Matrox of not trying. Mention the name to anyone in the computing industry and the word 'innovation' will often pop up. The Matrox G400's main innovative feature was its trail-blazing support for the Windows 98 dual monitor feature on a single card. Before the Matrox G400 came out, to exercise this useful feature you had to have two separate AGP- and PCI-based cards. Put simply, the G400 has two VGA connectors on one card, meaning that you don't need an extra PCI card in your PC to run two monitors at once (provided that you have Windows 98 or above).

Having two monitors may seem like a novel luxury, but it does have its uses. For example, graphics and Web designers can always use more screen real estate. Gamers also love the idea that you can have two different viewpoints on one machine, which is great for Quake and flight sims. You can even use one head as a

Tested on  
PII 350, 128MB, 20GB hard drive, Win98

TV output connector. Ingenious!

When I first got my hands on a G400, I was amazed at the performance and the unique environment bump mapping feature, but that was then and this is now. Sadly, time has caught up with the G400 chipset, even though this latest Max iteration comes equipped with a faster processor (which boosts performance by a claimed 30 per cent) and support for current technologies such as 2x/4x AGP.

In the performance testing, this card was either the slowest or near the bottom of the list. Surprisingly, this card was still able to give the much newer 3dfx Voodoo5 5500 AGP a run for its money. It still has its excellent picture quality, but it's not cheap or fast enough for me to recommend it.

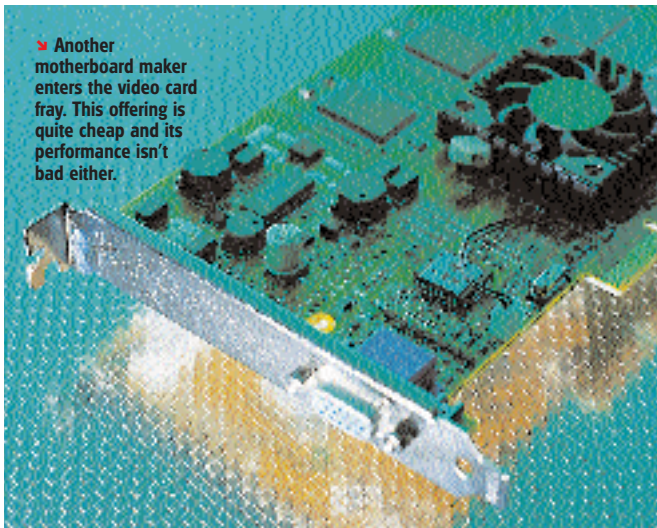
### PCPlus Verdict

#### MATROX G400 MAX

✓ FOR  
→ Great 2D performance  
→ Picture quality

✗ AGAINST  
→ Now feeling a generation too old, new G450 coming soon

Specification .....7  
Quality .....8  
Performance .....7  
Value for money .....8  
OVERALL .....7



Another motherboard maker enters the video card fray. This offering is quite cheap and its performance isn't bad either.

## MSI MS Starforce 8815

PRICE £211 EX VAT £180 SUPPLIER ADI  
PHONE 020 8327 1938 ONLINE [www.msi.com.tw](http://www.msi.com.tw)

The second cheapest GeForce 2 card comes from another motherboard maker, but this time it's MSI

**M**SI is a company more popularly known for its motherboards, so I was intrigued to receive a call, asking **PC Plus** whether we would like to review its new card. A couple of days later, a new MS Starforce 8815 duly arrived in the post. The first thing that struck me was the packaging; although it was one of the first cards sent out, it still came in a proper box with decent instructions. One thing that did let the side down, though, was the drivers being supplied on a CD that resembled a double-sided DVD disc with no writing on it at all. This was read by the **PC Plus** reference machine without a hitch, but restarting the machine after resetting did cause a blank screen. This was resolved by downloading the latest drivers for the GeForce 2 chipset (version 5.2 at the time of writing).

As this card is based on the nVidia GeForce 2 chipset, I wasn't expecting too much on the surprise and delight front. Like all the other nVidia-powered cards, the MSI MS Starforce 8815 has a second generation GPU (Graphical Processing Unit), and an improved Transform and Lighting (T and L) engine plus 32MB of fast Double Data Rate RAM. This can be used to full effect by S3's ST3C texture compression technology, which also appears here. Sadly, there is no TV out facility, and there are no games supplied in the box.

Tested on  
PII 350, 128MB, 20GB hard drive, Win98

However, most of the other cards didn't include games, not just MSI. While testing, VideoMark2000 showed that this card is good at DVD playback, but the picture quality struck me as decidedly average. As we all know by now, the GeForce 2 chipset is fast, but there are varying degrees of speed. Despite the inexpensive price, this card performed well across the board in the benchmark tests.

The MSI MS Starforce 8815 is a good card, but it is beaten by the Absolute Multimedia board when it comes to handing out the **PC Plus** Value award. The Absolute model has the best software bundle here and it also has better picture quality than this card, but that doesn't mean you should dismiss the Starforce out of hand.

### PCPlus Verdict

#### MSI MS STARFORCE 8815

- |                               |                               |
|-------------------------------|-------------------------------|
| <b>✓ FOR</b>                  | <b>✗ AGAINST</b>              |
| → Inexpensive                 | → Driver software pretty poor |
| → GeForce 2-equipped solution | → No other software supplied  |

Specification.....8  
Quality.....7  
Performance.....8  
Value for money.....8  
**OVERALL.....8**

## Results

### Test results

This month's graphics card tests were carried out on the **PC Plus** reference system, based around an Intel Pentium II 400 clocked at 350MHz (for reference purposes) with 128MB SDRAM.

To ensure fairness, I first created a blank ghost partition on the hard drive. This prevented different driver versions bleeding into each other and corrupting the scores. Next, I ran 3DMark2000, VideoMark2000 and Quake III.

3DMark2000 is known as the gamers benchmark, it tests a variety of features including DirectX 7 and Transform and Lighting performance.

VideoMark2000 tests image quality and the video quality of the chosen card.

Last but not least, Quake III is a yardstick that many gamers use. If you have a copy of this game and you want to test your own graphics card's performance, simply go to the console and type **Timedemo 1 [Return]**, **Demo demo001 [Return]**. The game will now test your card's OpenGL performance and return a figure in frames per second next time you go to the console.

#### VideoMark 2000 results

	Quality	Performance	Features	Overall
3dfx	498	136	552	1,186
Absolute Multimedia	723	205	599	1,527
Asus	678	180	599	1,457
ATI Radeon	733	165	639	1,537 ✓
ATI Rage	727	185	511	1,423
Creative	730	197	586	1,513
Hercules	724	179	599	1,501
Matrox	515	233	486	1,502
MSI	722	158	599	1,478

#### 3DMark 2000 results

3dfx	1,678
Absolute Multimedia	2,502
Asus	2,658 ✓
ATI Radeon	2,486
ATI Rage	1,987
Creative	2,561
Hercules	2,637
Matrox	1,195
MSI	2,273

#### 1,152 x 864 x 16 screen resolution

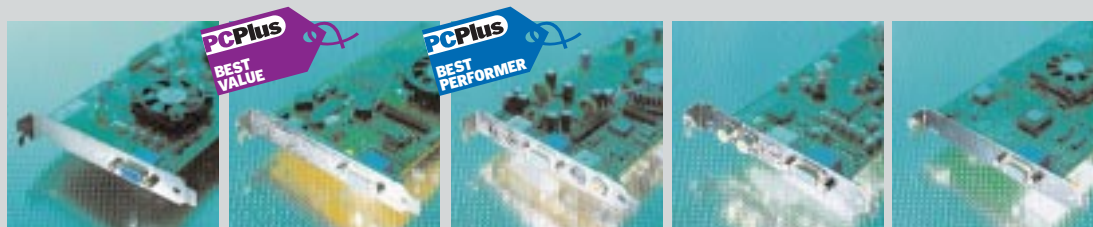
#### Quake 3 results

3dfx	31.3
Absolute Multimedia	49.2
Asus	49.4 ✓
ATI Radeon	44.7
ATI Rage	37.2
Creative	48.3
Hercules	49.4 ✓
Matrox	24.1
MSI	49.2

800 x 600 frames per second

## → Graphic cards head-to-head

Find the best graphics card to suit your needs



### CONTACTS

<b>Name</b>	Voodoo5 5500 AGP	GeForce 2 GTS	V7700 AGP Deluxe	Radeon 256	Rage Fury Maxx
<b>Supplier</b>	3dfx	Absolute Multimedia	Asus	ATI	ATI
<b>Web site</b>	<a href="http://www.3dfx.com">www.3dfx.com</a>	<a href="http://www.absolutemm.com">www.absolutemm.com</a>	<a href="http://www.asus.com.tw">www.asus.com.tw</a>	<a href="http://www.ati.com">www.ati.com</a>	<a href="http://www.ati.com">www.ati.com</a>
<b>Price inc VAT</b>	249	200	292	299	189
<b>Price ex VAT</b>	212	170	249	254	161
<b>Chipset</b>	Dual VSA-100	GeForce 2 GTS	GeForce 2 GTS	ATI Charisma Engine	2x Rage 128 Pro
<b>RAMDAC</b>	350MHz	350MHz	350MHz	350MHz	300MHz
<b>AGP Support</b>	2x/4x	2x/4x	2x/4x	2x/4x	2x/4x
<b>Memory MB</b>	64MB	32MB	32MB	64MB	64MB
<b>Memory type</b>	DDR (Double Data Rate)	DDR (Double Data Rate)	DDR (Double Data Rate)	DDR (Double Data Rate)	DDR (Double Data Rate)
<b>Max res supported</b>	2,048 x 1,536 @ 75Hz	2,048 x 1,536	2,048 x 1,536	2,048 x 1,536 @ 75Hz	16,00x1,200 @ 90Hz
<b>TV-Out</b>	No	No	Yes	Yes	No

### VERDICT

7

8

9

9

7



### CONTACTS

<b>Name</b>	3D Blaster GeForce2 GTS	3D Prophet II GTS	G400 Max	MS Starforce 8815
<b>Supplier</b>	Creative	Hercules	Matrox	MSI
<b>Web site</b>	<a href="http://www.europe.creative.co.uk">www.europe.creative.co.uk</a>	<a href="http://www.guillemot.com">www.guillemot.com</a>	<a href="http://www.matrox.com">www.matrox.com</a>	<a href="http://www.msi.com.tw">www.msi.com.tw</a>
<b>Price inc VAT</b>	250	260	158	211
<b>Price ex VAT</b>	213	221	135	180
<b>Chipset</b>	GeForce 2 GTS	GeForce 2 GTS	G400	GeForce 2 GTS
<b>RAMDAC</b>	350MHz	350MHz	360MHz	350MHz
<b>AGP Support</b>	2x/4x	2x/4x	2x/4x	2x/4x
<b>Memory MB</b>	32MB	32MB	32MB	32MB
<b>Memory type</b>	DDR (Double Data Rate)	DDR (Double Data Rate)	SDR (Single Data Rate)	DDR (Double Data Rate)
<b>Max res supported</b>	2,048 x 1,536	2,048 x 1,536	2,048 x 1,536	2,048 x 1,536
<b>TV-Out</b>	No	Yes	Yes	No

### VERDICT

8

9

7

8



# PCPlus VERDICT

Speed is the most important factor when it comes to graphics cards. We put the top cards through their paces with our PC Plus benchmarks and find out which cards win the awards

## Analysis

### Verdict

**New cards, new chipsets but only one winner**

The fastest chipset, as you'll no doubt have noticed, is nVidia's GeForce 2GTS. Cards using this technology, such as the Hercules, Asus and Creative were generally the best when it came to producing high DirectX and Open GL frame rate scores.

I was also extremely impressed with ATI's latest card, the Radeon. Using the new Charisma Engine, this card boasts an impressive array of graphics technology. This card may be beaten by a GeForce 2 with 64MB, but bearing in mind that the finishing touches have yet to be applied to the board and driver software, ATI's latest and greatest is definitely worth considering if you don't want to go down the GeForce 2 route.

That leaves the 3dfx Voodoo5 card and, frankly, that's what I feel many Voodoo 3 owners will be doing. The new 3dfx V5500 AGP card may be large and it may need external power to feed those VSA 100 and 64MB DDR memory chips, but I'm concerned that 3dfx is losing its way in the graphics technology race. I admit that it's not bad at full-scene anti-aliasing, but it's not that hot at what true gamers want; producing lots of frames on demand.

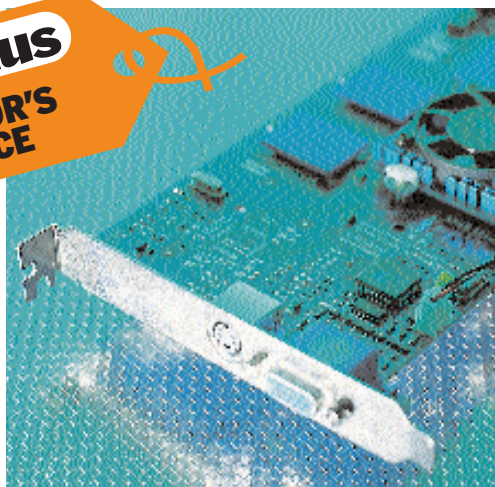
Historically, Matrox has always been near the top of game players' and graphic artists' shopping lists, mainly because its cards provide brilliant image quality. The forthcoming Matrox Millennium G450 borrows heavily from what has gone before. But new features such as DVI and DDR support may not be enough to make a challenge to nVidia's GeForce 2 GTS supremacy. Details on Imagination Technologies' (formerly known as Videologic) new PowerVR 3-based card are rather sketchy at the time of writing. Finally, nVidia's new GeForce MX chipset, thought of by some as GeForce 2 Lite, is coming soon. This chipset differs from GeForce 2 in that it's cheaper, slightly slower (so as not to damage GeForce 2 GTS sales) and has two new features: Digital Vibrance Control and TwinView. The former is said to make colours more vibrant, while TwinView is the equivalent of Matrox's Dualhead (twin VGA connectors on a single card).

#### EDITOR'S CHOICE

### → Hercules 3D Prophet II GTS 32MB

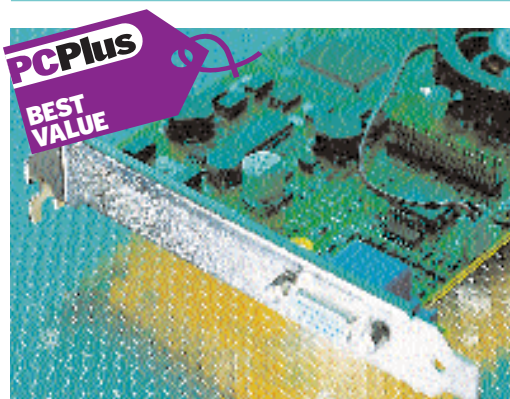
**PRICE** £260 **EX VAT** £221  
**SUPPLIER** Guillemot UK  
**PHONE** 020 8686 5600  
**ONLINE** [www.guillemot.com](http://www.guillemot.com)

The Editor's Choice award goes to the best all round card on test. This time we had a closely fought contest for this award between Creative's 3D Blaster GeForce 2 GTS and Hercules 3D Prophet II GTS. Both have very good performance, many features and decent prices. In the end, however, I feel that the Hercules 3D Prophet II GTS is simply the best. This card beats the Creative 3D Blaster GeForce 2 GTS in most of the benchmark tests. A killer blow is that for only £10 more, this card comes with a TV-out port.



This, in my opinion, is worth much more than a single piece of gaming software, especially for hardcore gamers, and so it wins this **PC Plus** lab test.

**PCPlus Verdict .....9/10**



#### BEST VALUE

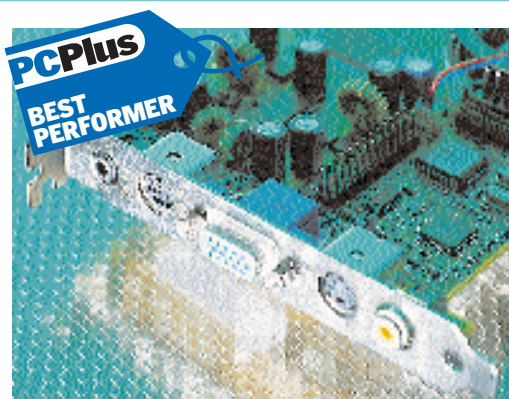
### → Absolute Multimedia GeForce 2

**PRICE** £200 **EX VAT** £170  
**SUPPLIER** Absolute Multimedia  
**PHONE** 01635 278587  
**ONLINE** [www.absolutemm.com](http://www.absolutemm.com)

The Absolute GeForce 2 card, like many of the others here, uses 32MB of DDR memory and is equipped with all of the other technical trickery that you get with GeForce 2. What you don't get with this model is the high price.

Commendably, Absolute has managed to supply the card and four games for £200. With some nVidia-equipped cards costing nearer £300 without any software whatsoever, it's easy to see why I've given this card the **PC Plus** Value award.

**PCPlus Verdict .....8/10**



#### BEST PERFORMER

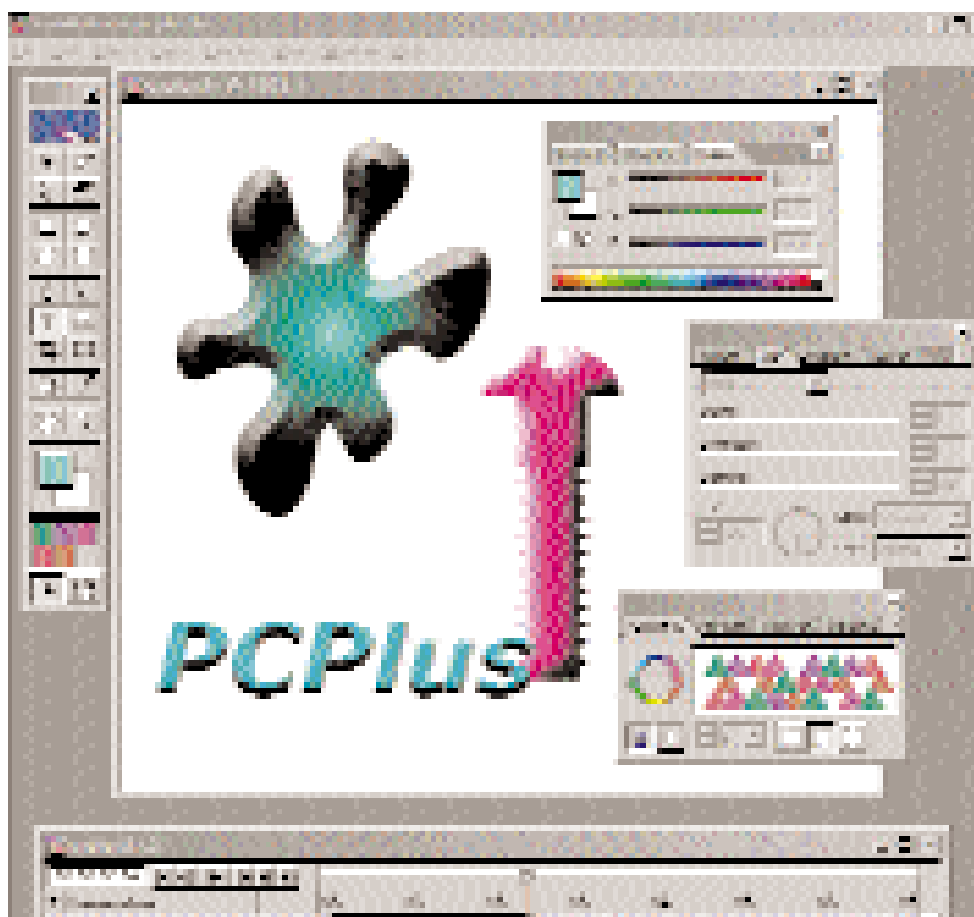
### → Asus V7700 AGP Deluxe

**PRICE** £292 **EX VAT** £249  
**SUPPLIER** Insight  
**PHONE** 0870 700 7072  
**ONLINE** [www.asus.com.tw](http://www.asus.com.tw)

The AGP V7700 Deluxe from Asus is the fastest card on test. Asus is no stranger to the video market and it has used this past experience to produce a GeForce 2 card.

The AGP V7700 Deluxe sits near the very top of the Asus video card tree, and only GeForce 2 cards equipped with 64MB of DDR RAM instead of 32MB cost more. This card has four connectors at the rear of the card enabling you to mix digital video and TV-Out signals, and furthermore this quick package also includes a game and a pair of 3D glasses.

**PCPlus Verdict .....9/10**



# WEB SITE DESIGNER

# Adobe LiveMotion version 1.0

**PRICE** £222 **EX VAT** £189 **SUPPLIER** Adobe  
**PHONE** 0208 6064001 **WWW** www.adobe.co.uk

**Adobe's LiveMotion is no flash in a pan and should give Macromedia something to think about**

**L**iveMotion is Adobe's latest addition to its range of tools aimed at the Web site developer. It is designed as a standalone application for producing Web animations but integrates seamlessly with many of Adobe's other products such as Photoshop and Illustrator.

Macromedia's Flash is one of the most popular applications used to produce animated graphics. LiveMotion is compatible with Macromedia's products and can export in several formats including the popular Flash format. Most browsers with the Flash plug-in loaded can read this and ensure that LiveMotion animations are easily viewed on the Web.

## Requirements

Pentium II or better.  
 Windows 98/2000/NT,  
 4.64MB RAM 80MB disk  
 space and CD-ROM  
 drive

**Tested on**  
 Athlon 600

Adobe has managed to achieve so much commonality between the opening screens of its range of applications, that when you first start up Live Motion, you could be mistaken and think you're in Photoshop. You are presented with several floating toolbars and the user interface can be a bit overpowering if you're not familiar with the Adobe way of doing things.

Some of Adobe's terminology may need coming to terms with but it does reveal the Object Orientated foundation behind the application. A LiveMotion document is called a Composition and this can consist of one or more Objects. Any object within the composition can be exported as an individual graphic or the whole composition as a Web page in HTML format. They can also be exported as a Web animation in Flash format or as an animated GIF, PNG or JPEG file. A composition can consist of objects of four different types: Geometric objects, Text objects, Image objects and Sound objects.

Geometric objects are any designs which you create with the built-in drawing tools or drag into the design from the library. Imported EPS graphics are also converted to geometric objects. Text objects are created with the standard Type tool. Once created they can be manipulated and you can apply a wide range of special effects. Most bitmap formats can be imported into LiveMotion. If you're using Photoshop then the image can be dragged and dropped directly into LiveMotion. It also supports Adobe Plug-ins, so you can use all its fancy

effect filters. Audio files can be associated with animations and rollovers. Move your cursor over a Web page and when you pass over a button it will play a sound.

## Compositions

When you start a new composition you'll be asked for the size of document you want to create. This sets up the size in Pixels and the frame rate for the animation. You'll then be presented with a blank page and a whole lot of palettes. The main toolbar will be familiar to users of most Adobe products and gives you a selection of drawing and editing tools. Four other palettes are also available. These can be closed and reopened as you need them and are used to change colour, insert objects and sounds from standard libraries and apply specific styles to your composition.

If you create a new object with a drawing tool, this will be constructed on its own layer. In a composition, each object has its own layer, special effects can be added to each individual object and each effect is created on an additional layer. It may sound over the top but does enable flexible control over special effects.

One feature that will be familiar to anyone who's used a sound-editing program is the Time Line. This gives you a window on the sequential events

← **The environment can seem a bit overpowering at first but anyone used to Adobe products will feel at home.**

within an animation. If you import a sound file or drop a sound from the sounds selection palette into your document, it will show up in the time-line alongside any other objects you've created. This gives you an amazing level of control over individual animations. You can step through an animation and adjust the position of individual objects relative to the whole animation.

## Conclusion

There are so many features within LiveMotion that we could go on and on. The inclusion of bezier drawing tools and the time-line enable the creation of very sophisticated and accurate animations. Integration with other Adobe products and Photoshop Plug-ins adds powerful bitmap editing and effects. A great product and welcome competition for Macromedia.

**Paul Warner**

## PCPlus Verdict

### ADOBE LIVEMOTION VERSION 1.0

#### ✓ FOR

→ A sophisticated animation creator with Flash compatibility

#### ✗ AGAINST

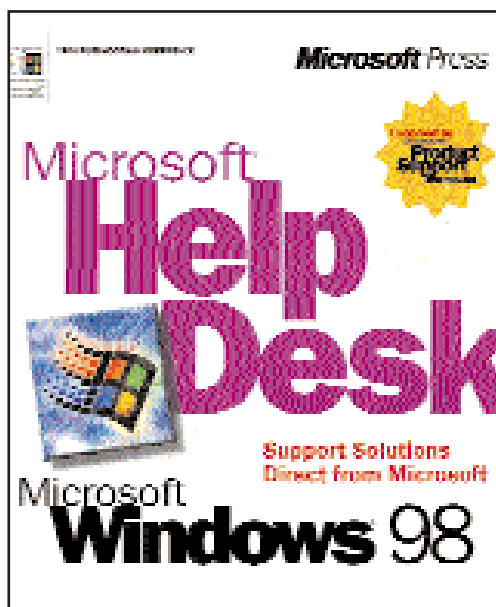
→ A steep learning curve

**Specification** .....9  
**Quality** .....10  
**Performance** .....9  
**Value for money** .....9

**OVERALL** .....9

# Essential reading

**Wilf Hey looks at Help Desk, Hints & Hacks for Windows 98 and ventures into the world of MP3**



[mspress.microsoft.com](http://mspress.microsoft.com)

## Microsoft Help Desk for Microsoft Windows 98

**A valuable problem-solving reference for Win95**

**PRICE** £39.99  
**FORMAT** Book/CD  
**AUTHOR** Stephen L Nelson  
**PUBLISHER** Microsoft Press  
**ISBN** ISBN 0-7356-1096-7

Well over a thousand problems, along with their solutions, are documented here with direct reference to the **Microsoft Product Support Services Knowledge Base for Windows 98**. This valuable tool resembles all those tomes that barristers and solicitors consult citing 'case law': these are not cute little tricks and tips, but real workday problems and painstakingly established solutions or, in some cases, workarounds. Each of these problems has perplexed some Windows users and, who knows, you may be the next.

This thick book is organised into 15 chapters (System Tools, Internet, Desktop and Start Menu, and so on), and each of

← Microsoft Help Desk for Microsoft Windows 98 gives you solutions at your fingertips.

these is further subdivided to make it easier to home in on a particular problem (or 'issue' as Microsoft insists). Several of the more commonly seen problems are noted as 'hot topics'. Interface (and interference) between Windows 98 and various common integrated utilities is dealt with in many instances.

Each problem is headlined with a concise summary (such as 'ActiveX controls don't work') – incomplete as a description in itself, but ideal when you are scanning a list with your eye, hoping to see something familiar. The index is particularly good, and will substantially aid somebody locating in the text the details of a problem they are experiencing.

Do not expect to pick up this book and find useful tips – it is a problem-solving reference, and a good one at that.

**PCPlus Verdict 9/10**



[www.quecorp.com](http://www.quecorp.com)

## Windows 98 Hints & Hacks

This fascinating book takes the generally informed reader a little deeper into Windows 98 than standard manuals. Organised more or less on the same basis as our own HelpDesk feature, this book is divided into a multitude of short, interesting fixes, strategies and tips, categorised rather loosely about themes (such as 'Mouse Performance').

Each subject is dealt with in a clear manner, usually involving numbered steps and peripheral discussion explaining what is going on when you

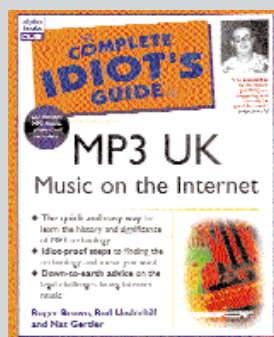
**PRICE** £18.49  
**FORMAT** Book  
**AUTHOR** Dean Andrews  
**PUBLISHER** SAMS (Que)  
**ISBN** ISBN 0-7897-1750-6

perform those steps. There are lots of screen shots and other diagrams, well presented on the page to make it easy to follow through on the advice and information provided.

Quite a lot of the information, though intermediate in difficulty, involves accessing buttons inadequately explained in Windows Help on obscure menus, and few indeed could seriously be called 'hacks'. To more experienced users of Windows, a good number of the tips are facile – things that you will have done when first adjusting the Windows system to your own preferred use, like 'make a shortcut to... (fill in some service)'.

That said, there is plenty of material here to occupy many hours getting to know Win98 and its resources better, and a good dollop of advice that can make daily use of Windows a more pleasurable and productive experience.

**PCPlus Verdict 8/10**



[www.mcp.com/ciguide](http://www.mcp.com/ciguide)

## The Complete Idiot's Guide to MP3 UK

This quirky little book leads you into the world of MP3 music available on the Internet, and holds your hand as it guides you around, giving excellent tips and advice. It is light-hearted and humorous and, as you follow the trek you will feel that you have come to know the authors, including not only their technical skills but their taste in music, and even pet hates. The book is full of amusing asides, such as a

**PRICE** £14.99  
**FORMAT** Book/CD  
**AUTHOR** Roger Brown et al  
**PUBLISHER** Alpha books (Que)  
**ISBN** ISBN 0-13-087921-5

panel on why a particular freeware author is wrong for describing some simulated lights as 'LEDs'.

There is guidance both for the fan of any of the various music genres (just about anything is available on the Net), including baroque, classical, romantic, jazz, rock, country, and even postmodern, despite the fact that music was assassinated December 8, 1980.

The book forms a good technical guide to software and hardware at the same time, and there is excellent material on the accompanying CD so that the raw beginner – if he has the multimedia hardware and access to the Internet – is ready for a quest for good quality recorded music.

Plenty of Web sites are outlined, including some intriguing mini-interviews with their owners.

**PCPlus Verdict 8/10**

## Extra Information

Many books are available from Computer Manuals  
Telephone: 0121 706 6000 Fax: 0121 606 0477  
e-mail: [info@computer-manuals.co.uk](mailto:info@computer-manuals.co.uk)



[computer-manuals.co.uk/ad/d47](http://computer-manuals.co.uk/ad/d47)

Also check bookshops, the Web site of the publisher, or an online bookshop such as Amazon



[www.amazon.co.uk](http://www.amazon.co.uk)



# BRIEF ENCOUNTERS

→ The bit of the mag where we get short and to the point...



## Wipe Out! CD Repair Kit

**PRICE** £15 **EX VAT** £13  
**SUPPLIER** Manor Marketing  
**ONLINE** [www.cdrepair.com](http://www.cdrepair.com)  
**PHONE** 01274 674790

**When** CDs were first launched, there was a lot of publicity about how tough they were. PR people claimed that they were tough enough to use as coasters. But, of course, claims like these aren't always wholly reliable. CDs are quite sturdy but they're not scratchproof, whatever the DVD and CD spin doctors tell us.

Wipe Out! is a liquid that acts like a liquid sandpaper, repairing the scratches on all types of CD or DVDs and restores them to their original performance. One bottle contains enough liquid to repair 40 damaged discs and at just £15 a bottle, it pays for itself after just one application.

**PCPlus Verdict** 7/10



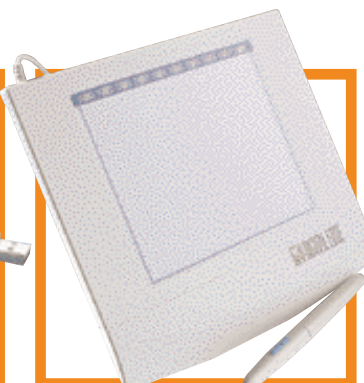
## Com one1 USB Light Rider 128

**PRICE** £79 **EX VAT** £67  
**SUPPLIER** Pico Systems  
**ONLINE** [www.com1-telecom.com](http://www.com1-telecom.com)  
**PHONE** 01483 845200

**If** you're from the old school of computing, you may remember modems in the days when baud rates were 96, 144 and 28.8K. Now 56K modems are the norm, which might seem to be a lot faster but they are still relatively slow compared to ASDL and ISDN.

ISDN needs a special connector to link the high-speed data line to your PC. The Com one1 USB Light Rider 128 is a neat USB-based solution that gets rid of the box or internal PCI card, and is easy to install and use. It can handle the ISDN data transfer at up to 128K.

**PCPlus Verdict** 8/10



## Digital Edge Natural Pen

**PRICE** £70 **EX VAT** £60  
**SUPPLIER** PC World  
**ONLINE** [www.ivell.com](http://www.ivell.com)  
**PHONE** 01206 878700

**Digital** signatures are now recognised as legal by UK and US governments. This may increase the sales of digital graphics tablets as they'll no longer be just for graphics artists. The Natural Pen is a graphics tablet which offers 512 levels of pressure and an active area of 110 x 150mm. Unlike some other graphics tablets, this model has a wireless stylus and a small battery (supplied) fits into the top of the pen. It's powered by the serial/keyboard ports of your PC. On the tablet are ten functions keys which can be programmed so that you can initialise calls issued by your software. It comes with Art Dabbler and Cadix signature verification.

**PCPlus Verdict** 8/10



## Feller power connector locks

**PRICE** Around £1 per clip  
**SUPPLIER** Feller UK  
**PHONE** 0191 455 1048  
**E-MAIL** [info@feller.co.uk](mailto:info@feller.co.uk)

**Feller** UK has introduced some handy retaining clips to stop your power cable becoming disconnected. Fitting the clips is easy and, once installed, you'll never have to worry about losing work when moving your computer. This is great for all those in offices who often move PCs in order to plug in PDA leads and USB connectors. The only downside is that you may have to buy these clips in a large quantity. For example, 100 of Feller's C13 clips cost £100, so work out at around £1 each.

**PCPlus Verdict** 8/10



## → USB Flipdisk

**PRICE** £311 **EX VAT** £265 **SUPPLIER** Amacom  
**PHONE** 020 8993 7373 **ONLINE** [www.amacom-tech.com](http://www.amacom-tech.com)

Amacom's Flipdisk has been around for a while but has now been updated by the addition of a USB version. It's also joined the translucent plastic gang.

There are seven versions available, ranging from 4GB to 25GB, the one I've reviewed here is the 6GB one. The Flipdisk is a 2.5-inch IDE hard drive, the same drive you'd find in portable computer. A PCMCIA interface is attached to one end and a USB interface to the other.

Performance on the USB interface hits the buffers, about 750KB per second. Connected via PCMCIA, you can achieve considerably

better performance, near hard drive levels. One neat consequence of using USB is that it no longer needs an external power supply.

It's a smart idea; portables users get a high-speed removable hard drive which you can then use in any USB-equipped PC. The convenience and flexibility is costly, though. It's best suited to hard drive back-up and similar high-capacity tasks.

**PCPlus Verdict** 7/10



## → Samsung SGH-M100 MP3 Playing Phone

**PRICE** £350 **SUPPLIER** Virgin **WWW** [www.virginmobile.co.uk](http://www.virginmobile.co.uk)  
**EX VAT** £298 **PHONE** 0845 6000 600 **E-MAIL**

We've been looking forward to reviewing this phone for a while and, at last, it is finally here. Virgin Mobile is one of the first phone companies to offer the innovative new Samsung SGH-M100, – the world's first MP3 playing mobile phone. This phone has all the facilities that you would expect from a mobile phone such as games, the ability to send and receive text messages and a calendar. The fun really starts,

however, when you press the MP3 button on the side of the phone. This gives you access to 32MB of MP3 songs, about 8-10 full tracks. The sound quality is very good and there are graphic equalising capabilities so you can change the sound to suit rock, metal and jazz music. There's a neat remote incorporated into the headphones. There really isn't anything to complain about, apart from the price.

**PCPlus Verdict 9/10**

**Extra information**  
 Supplied with 32MB of memory

## Sony NW-MS7 MP3 Player

**PRICE** £300 **EX VAT** £254 **SUPPLIER** Sony  
**ONLINE** [www.sony.com](http://www.sony.com) **PHONE** 0990 424424  
**E-MAIL** [sales@sony.com](mailto:sales@sony.com)

Sony leads the pack in portable audio entertainment and the NW-MS7, a solid state audio device, is no exception. It's about the same size as a cigarette lighter and weighs about the same. The sound quality is excellent, with variable base control, and the whole thing is controlled with a jog wheel. The data is stored on the memory stick, which you can remove and replace. However, at £150 you might prefer to add and remove music on the memory stick with your supplied PC software. Where the NW-MS7 proves controversial is in the choice of its music formats and software. Although it can play back MP3 and WAV Files, the OpenJukebox software converts them to the Attrac3 compression standard – originally created for MiniDisc. The MagicGate memory card has also been made SDMI (Secure Digital Music Initiative) Compliant which means it's able to make a copy of a track just four times before you have to erase the original and start again. So if the music industry cracks down on MP3 sites and forces them to become SDMI Compliant, then Sony will be ahead of the game.

**PCPlus Verdict 8/10**







« The iPAQ has the looks to win in the battle of the hand-helds, but its lack of on-board expansion could be a problem.

## HAND-HELD PC

# Compaq iPAQ

**PRICE** £398 **EX VAT** £339 **SUPPLIER** Compaq **PHONE** 0800 027 7270  
**WWW** [www.compaq.co.uk](http://www.compaq.co.uk)

**Compaq's iPAQ is a good looking computer which runs very fast, thanks to its StrongARM processor**

**M**icrosoft's latest reworking of Windows CE for palm-sized PCs, formally known as Pocket PC, has been out for a few months now, and we have already reviewed machines from Hewlett-Packard and Casio. Compaq is the third company to release a unit on to the market.

The iPAQ is as different in looks from the Hewlett-Packard and Casio offerings as those two are from each other. It seems that as the operating system itself gathers pace so hardware partners are realising that their products need to be visibly different from each other to gain market share.



### Specifications

Intel StrongARM 32-bit RISC processor running at 206MHz, 32MB RAM, 4096 colour TFT LCD display, lithium polymer battery with quoted life of 15 hours, infra-red port, built in microphone for voice recording

### Other information

Pocket PC is supplied with Calendar, Inbox, Contacts, Notes, Pocket Excel, Pocket Word, Tasks, Microsoft Pocket Internet Explorer, Microsoft Money, Microsoft Windows Media Player for Pocket PC, Microsoft Reader. Desktop software includes ActiveSync. Compaq Software includes QMenu (access to backup, volume and other system tools), QStart (grouping applications by type), Picture Viewer, Asset Viewer, PacketVideo Player

**Additional hardware**  
Includes docking station

The iPAQ is stunning silver in colour, and has a retro look and an oval-shaped joystick button below the screen. Compaq has borrowed this idea from Casio who used it first, but has added the feature of doubling it as a speaker. In addition to this, there are four tiny buttons on the front of the case that act as shortcuts to applications, and one on the top that switches the machine on and off. The sides are almost button free – a move away from earlier designs and a welcome one: I was forever accidentally invoking applications on earlier machines.

There is another design feature to the iPAQ, and this one is unique. The unit itself is very thin and light – it weighs just 60z. This is because it does not have any expansion ports on board. Compaq has decided to provide expansion via 'jackets' – cases that the iPAQ slides into. A non-functioning one, which for some odd reason Compaq has chosen to name the 'straight jacket', is included so you can see the idea in practice. There is a jacket providing a compact flash card slot which costs £29 (£25 ex VAT), and another adding a PC card slot for £72 (£61 ex VAT). More will provide additional features, while others will simply provide a 'look', as casings for mobile phones do. Will the market buy a hand-held computer

without on-board expansion? Well, they buy Palms so they may buy this, but it makes Casio's alternative, with its built in softmodem and CompactFlash card looks positively feature-rich.

The iPAQ is powered by a StrongARM processor which runs blisteringly fast – during my time with the machine I barely saw the Pocket PC wait icon at all. There is 32MB of RAM on board – which is enough for working files and a few MP3s without the need for a CompactFlash card slot.

The display is first-class. Though it can only muster 12-bit colour (4,096 colours), it is very clear, and a built-in light sensor automatically adjusts its brightness to cater for different lighting conditions. This works extremely well, though the automatic shifting of the display is disconcerting at first. High brightness is a battery drain, of course, but Compaq quotes 15 hours of life from its lithium polymer cell, so this is less of an issue than it has been in the past.

PC connectivity is USB by default. This is a faster option than the serial alternative some others still offer, though users without a USB port on their PC or portable will need to invest in a separate serial connector.

I did find one serious design fault with the iPAQ. The stylus is not symmetrical in shape, thought the inequality is slight enough to be all but invisible. I managed to force the stylus into its slot the wrong way round before realising this, and the quick release button refused to work. I had to use pliers to remove it.

Compaq provides a range of additional tools and utilities over and above those that come as part of Pocket PC itself. These include a video and image viewer, and screen tools to provide quick access to applications and controls. The presence of the latter may be a sign that, for all Microsoft's shouting that the Pocket PC interface is more user friendly than its predecessor, Compaq still feels it needs a little help.

Compaq's iPAQ is a real move forward as far as hand-held computing is concerned. It is a good looking computer which runs fast. We wonder whether the jackets idea is really one that will sell, though. When you pay £400 for hardware, do you really want to start shelling out more for proprietary devices when other manufacturers' hardware provides access to generic ones?

**Sandra Vogel**

## PCPlus Verdict

### COMPAQ iPAQ

#### ✓ FOR

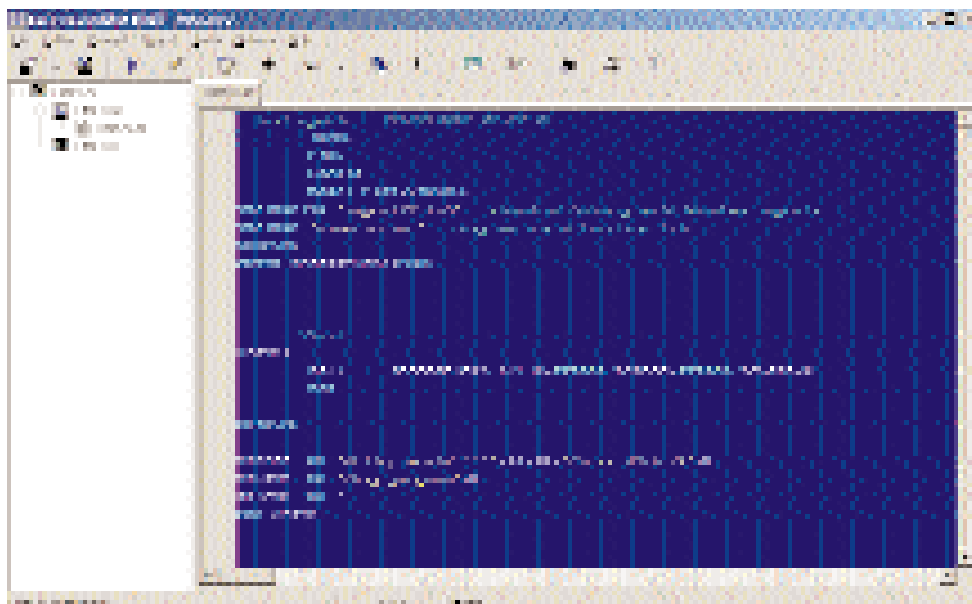
- Stylish
- Fast
- Strong battery life

#### ✗ AGAINST

- No on-board expansion
- Only 12-bit display
- No printed documentation

Specification.....	8
Quality.....	8
Performance.....	9
Value for money.....	8
<b>OVERALL.....</b>	<b>9</b>





## ASSEMBLER SHELL

# Easy Assembler Shell Version 4.17

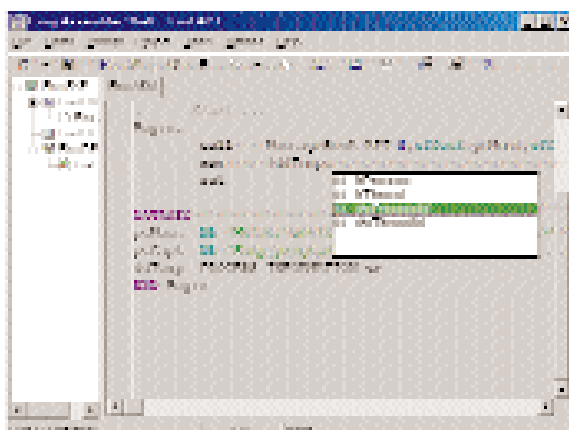
**PRICE** \$47 **SUPPLIER** Roman Novgorodov **WWW** [www.chat.ru/~noro/eas.htm](http://www.chat.ru/~noro/eas.htm) **E-MAIL** [noro@chat.ru](mailto:noro@chat.ru)

**If you program in assembly code, you'll find this tool a productivity multiplier**

**T**hese days, assembler programming is very much a minority sport. The power of modern hardware, and the quality of most development tools ensure that you'll rarely need to use assembler code to get acceptable performance. Moreover, the increasing emphasis on cross-platform portability makes it unlikely that you'd want to tie yourself to a particular processor without very good reason. Despite all this, there are still some very dedicated (not to mention zealous!) assembler programmers out there.

If – for whatever reason – you prefer assembler programming, then take a look at Easy Assembler Shell from Roman Novgorodov. In essence, it's a sort of miniature development environment aimed specifically at assembler programmers. All the usual goodies you'd expect are there including a hierarchical tree-view of the current project, a customisable, colour-coded text editor for displaying your assembler source code and so forth.

The development system isn't entirely standalone, or to put it another way, it needs the services of a third-party resource compiler, assembler, linker and so forth. You can configure Easy Assembler Shell to work with either



↑ This screenshot was taken from the author's Web site. Try as we might, we were unable to coax the shell into displaying a popup 'IntelliSense' menu.

### Minimum requirements

Windows 95/98/NT4/2000, 16MB memory, 2.5MB disk space, TASM, MASM

### Tested on

Windows 2000, 500 MHz Intel, 256MB RAM

### Available on

Web download from [www.chat.ru/~noro/eas.htm](http://www.chat.ru/~noro/eas.htm)

### Extra information

Shareware Lite version available on Web site

Microsoft or Borland development tools, and you can even use it to develop 16-bit code if desired. One minor irritation here is that the shell defaults to 16-bit work, which means that, for example, it will look for TLINK.EXE rather than TLINK32.EXE. Once you've got the shell configured as you'd like, you can assemble and link your target executable with just a single button press.

And then the fun really starts! You can set up different context-sensitive help files according to whatever word the cursor is on at the time you hit the F1 key. Thus, with the cursor over an assembler directive, you'll get information that relates to the assembler itself, whereas if you press the help key on a machine code instruction, then the supplied X86EAS.HLP file will automatically be invoked, providing specific information on

that instruction. Incidentally, the aforementioned help file contains a lot of fascinating, in-depth pseudo-code which documents exactly what happens when a particular machine code instruction is executed. In the case of the ubiquitous CALL instruction, this runs to several pages – you'll never call a subroutine so casually again!

Negative comments? The supplied include files are minimalist, although of course there's nothing to stop you converting wanted Win32 or Win16 data structures into assembler code for yourself. Program set up is by no means

← Easy Assembler Shell features an attractive development environment with hierarchical project view and a syntax-highlighted text editor.

as intuitive as it ought to be and the author has sometimes taken a very...erm, unorthodox approach to user interface design. For example, the Project

Options dialog requires you to click the mouse on a text label in order to save the current settings as the new default. Probably one of the most annoying aspects of this utility is the Russian English. At \$47 a throw, Roman should be able to afford a native English speaker to produce a more readable version of the program. As it is, you're stuck with strange checkbox options such as "Look NAMES in INCLUDELIB...", and "Place Value in the Clipboard". After a certain amount of head scratching, it's usually possible to figure out what was intended!

Overall, we felt that Easy Assembler Shell was an interesting little utility for assembler developers. It brings assembler programming kicking and screaming into the twenty-first century and – thanks largely to the context-sensitive help file support and syntax highlighting – makes for a far more productive development environment than would be the case with a plain vanilla text editor.

The only real disappointment here concerns an intriguing screen shot on Roman's Web site which suggests that Easy Assembler Shell contains a sort of 'IntelliSense' capability, being able to display a popup list of, for example, record fields after entering the initial dot specifier. But try as we might, we were unable to get this to work.

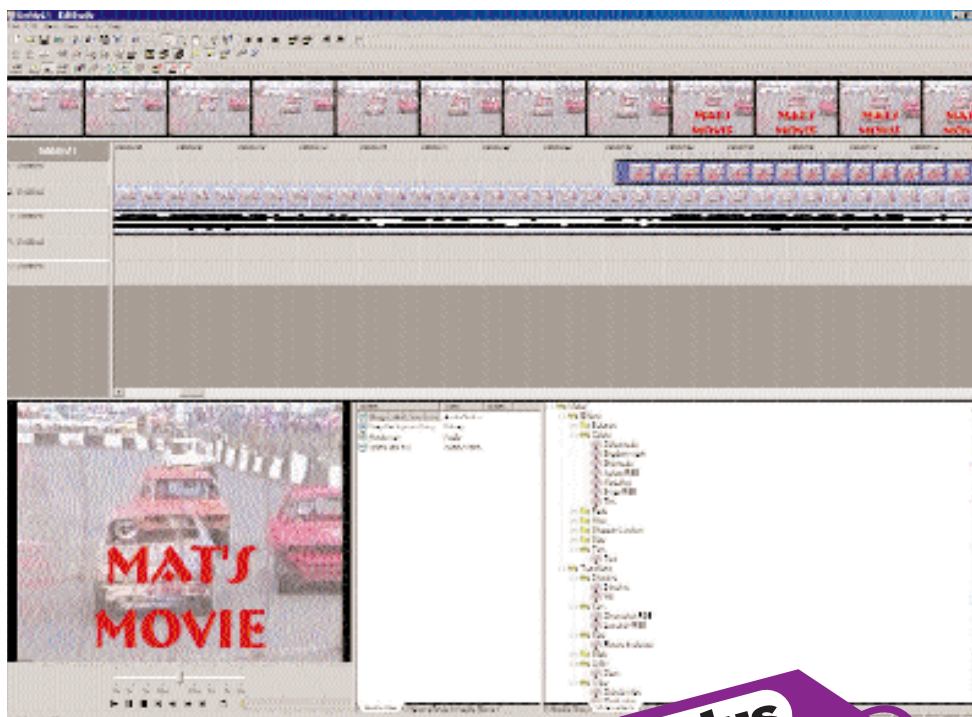
**Dave Jewell**

## PCPlus Verdict

### EASY ASSEMBLER SHELL VERSION 4.17

✓ FOR	✗ AGAINST
→ Productive development environment	→ Not easy to configure
→ One-click builds	→ Idiosyncratic dialogs
	→ Awful documentation

Specification .....	7
Quality .....	6
Performance .....	7
Value for money .....	7
<b>OVERALL .....</b>	<b>7</b>



## VIDEO EDITING

# EditStudio



**PRICE** £20 introductory (£149 for commercial use) **SUPPLIER** Pure Motion  
**PHONE** 01625 260 203 **ONLINE** [www.puremotion.com](http://www.puremotion.com) **DEVELOPER** Pure Motion

**How seriously can you take a £20 video editing program? Prepare yourself for a pleasant surprise...**

**W**e thought that the days of the one-man software companies were dead, at least as far as major applications were concerned. Sure, there are still lots of people turning out excellent shareware utilities on their own, but when it comes to applications that have had decades of research and millions of pounds spent on them, it hardly seems credible that a couple of brothers should be capable of producing a program that competes, yet that's exactly what EditStudio represents.

EditStudio is a time-line based video editing program much like Adobe Premiere or Media Studio. It has a familiar look and feel to it and, thanks to its auto-scaling panel design, it works well at most resolutions of 800 x 600 or higher. Now Premiere's floating windows may sound sensible, but they don't work at all in practice, and all you do is waste your time moving them around. EditStudio has a much nicer auto-adjusting design, using tabs to bring additional panes to the forefront.

The main window is divided into six areas. At the top of the screen is the toolbar, beneath which runs the preview strip showing frames from the processed movie. Beneath that lie the time-line windows. The



↑ Pure Motion is proud of its video capture program, which it considers superior to most commercial alternatives.

left panel is simply where you can label the different layers, while the right panel holds the layers. A layer is what EditStudio calls the strips that can hold various types of media event such as a transition, video, sound clip, effect or title. The word 'layers' is a very conscious decision because unlike many video editing programs, you can layer things one on top of the other, building up complex effects, colourising processes and so on.

This may imply that EditStudio has a vast array of plug-ins or provides support for third party plug-ins, which is not the case. However, it does come with enough plug-ins and filters to make it useful. Some of the most useful are Gamma, Tint, Contrast, Negative, Emboss, Sharpen and Blur. There is also a small, but practical collection of transitions as well as some limited sound processing options.

.....  
**System requirements**  
 Pentium 200, Win95 or higher, 32MB RAM, 12MB hard drive space, SVGA graphics card

The approach towards filters and plug-ins typifies the program's approach to everything: you get enough to do a fairly sophisticated job well, but you don't get the tools to cover every single eventuality like you might with one of the £500-plus packages. That's not a bad thing because most people never use most of those tools and all they do is add confusing clutter.

If EditVideo has one positive attribute, above all else, it's the fact that it's clean and intuitive. Given this program's low, low price point (albeit a 'special' price — supposedly), we were expecting a badly designed toy. What we actually discovered was a surprisingly well-designed and powerful editing program that provides all the functions you'll need for most jobs.

Returning to the program's main window, at the bottom-right of the screen is the playback window, where your edited video is replayed.

← Remarkably for just £20 you get a well-written, fully-fledged, fully useable time-line based video editing program.

You don't have to render video to hard drive before it can be played; you watch your project develop as you

work, and all changes are virtually instantaneous. Sadly, this is one part of the interface that suffers if you reduce the program window too far. Supposedly, everything resizes to give you the best working environment at any size, but you can easily reach a stage where the playback window is neither visible, nor can you reach it by scrolling.

Beside the playback window is the resources pane, showing effects and filters as well as media files that have been loaded into the project. Here again is another minor, yet frustrating source of irritation. To add media files to a project, you must go to the Tools/Media Files menu, and not as with every other program, the Files Menu. When you get there, it's impossible to multi-select files, so if your project uses 50 files, you'll have to load each of them individually, which is tedious to say the least. By all means introduce well-thought-out, positive changes, but not just for their own sake.

Despite a few naive flaws in the program, our general disposition towards EditStudio is good, good, good. That something this impressive can be written by a couple of brothers at home is great; that it's British is something for us all to be optimistic about.

**Mat Broomfield**

## PCPlus Verdict

### EDITSTUDIO

✓ FOR	✗ AGAINST
→ Very intuitive	→ Some minor interface quirks
→ Inexpensive	→ No plug-in support
→ Supports picture-in-picture, chroma-key and MP3 music	→ No vector graphic support

Specification.....	8
Quality.....	8
Performance.....	9
Value for money.....	10

**OVERALL.....9**

## File and Printer Sharing (NetBIOS) Fact and Fiction

### Part of the Navas Cable Modem/DSL Tuning Guide™

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#### Contents

- The Problem
- The Solution
- What
- How
- What's in the Guide
- What's in the Guide
- NetBIOS: A Guide for Users (page 1)
- Understanding NetBIOS: A Guide for Users (page 1)
- What's in the Guide

#### Disclaimer

- The following material presents a summary of the NetBIOS protocol. It is not intended to be a substitute for the actual protocol specification.

simultaneously (as long as you don't mind the resulting performance hit).

One of the reasons this all manages to work correctly is that each service you've set up is using a different 'port'. (A port doesn't refer to a physical connection, like the serial port on your PC – it's purely a virtual thing). For example, when your browser sends a command to a remote Web server, it defaults to using

← There's a lot of hysteria, myth and misinformation out there about Internet security, but the detailed information available at the Navas site (<http://Cable-DSL.home.att.net/netbios.htm>) does a great job of helping you to pick the fact from the fiction.

port 80, while ftp commands go to port 21. Each program running on the server is said to be 'listening' to its own port, and ignores the commands sent to the others.

We're using servers here as an example, but in fact

your PC has ports, too, and when you're online, they are all accessible to any passing cracker who cares to examine them. It isn't even very difficult; there are a vast selection of 'port scanning' tools available to help them. And the worst thing is, you'd never even know anything was happening...

### Who's at risk

So far this all sounds very alarming, but there's no need to start panicking; the news starts to get better from here on in. Beginning with the simple fact that, for most standalone PCs which are not networked, there is no significant risk at all. Your PC's ports will only permit access to your system if you are actually running a program that's 'listening' to one. If you are not running any such applications, crackers can aim as much of their port-scanning armoury at your

## FIREWALLS

# Protection racket?

Everyone is concerned about Internet security, but what part do personal firewalls have in keeping the bad guys out of your PC? Mike Williams explains

**T**he Internet is the biggest network in the world. You knew that already, but have you thought about what it actually means?

Most people tend to have a concept of the Net as just a huge reference library, where you go online and browse for what you need. And in a sense they're right, but it misses the point. A network is all about connecting computers together and enabling them to share information, and the traffic is rarely one way. So when

you go online, you're just another computer on the Internet – if you can access other systems, what's to stop a cracker getting into yours?

### Understanding ports

A server connected to the Internet might be able to carry out any number of tasks: receive e-mails, act as an ftp or Web server, even a newsgroup server, depending on how you set it up. What's more, there's no reason why the computer can't do all of these things

## → Using ZoneAlarm

Packages like the Norton and McAfee firewalls are great, but if you're just beginning to investigate this area of Internet security, we'd suggest you start with a program called ZoneAlarm. Not that it's any better, in fact ZoneAlarm has less functionality, but it's easy to use and free for personal use, and so ideal for finding out how a firewall works. You can download the latest version at any time from [www.zonelabs.com](http://www.zonelabs.com)



↑ Double-clicking on the ZoneAlarm icon in your system tray launches this control panel. All the program functions are accessed from here, but initially you'll just want to check the program settings. Click on the small round Zoom button at the bottom right of the dialog box, then select Security.



↑ You can set up different levels of security for local network and Internet access, by adjusting the sliders (similar to Internet Explorer, except you can't create a Custom Level). There's also a MailSafe feature for trapping potentially dangerous e-mail scripts, which may be enabled or disabled from here.



↑ Soon after installing ZoneAlarm, the program will begin alerting you to other computers trying to access your PC. If the constant warnings get annoying, clear the Show the alert pop-up window option in the Alerts dialog; you'll still be protected, and can view the latest alerts here, or in a log file.



## → Very OpenWorld?

**ADSL has gained a reputation as being insecure. Is it true or just another Internet security myth?**

One of the most commonly-heard security claims is that if you have an ADSL Internet connection, there's a greater danger that someone will be able to crack into your PC. But is this true?

The main assumption behind this relates to the way in which you are assigned an IP address on the Internet.

Dial in to a normal ISP, and you'll be given a different IP address every time. Someone can discover that address, perhaps if they talk to you via ICQ or if you visit their Web site, but they'll only have the length of your current Internet session in which to attempt to access your system.

With ADSL, it's been assumed that you're allocated one address permanently (a 'static IP address'). If this were true, then once someone discovers that address (not too difficult a task) they would always know your location on the Internet, and have much longer to carry out and plan an attack.

However, we've spoken to BT, and it seems their OpenWorld system doesn't work like this at all. When you first go online, your system must log on, and you're allocated an IP address for the current session. Finish browsing, and after a period of idle time, the session times out and the current IP address is lost, so you'll get a new one the next time you use the system. This all sounds very similar to the standard dial-up system to us, so it doesn't look like using ADSL is going to result in any new security issues.

PC as they like, and they'll get no response at all.

There is an exception, though; when you're online, a remote computer could retrieve the network identification information for your PC (check the Identification tab of the Network icon in Control Panel to see what that is) using a port left open by default under Windows. As they can't actually do anything with that information, it doesn't really qualify as a significant security risk, but even this becomes unavailable with a few Dial-Up Networking tweaks (for details, see <http://grc.com/su-bondage.htm>).

→ Windows isn't exactly the most secure operating system in the world. For information on the latest issues, and (often) downloads to patch them up, visit [www.microsoft.com/security](http://www.microsoft.com/security)

## The wall of fire

The aim of a firewall is to prevent unauthorised access to a computer, or network of computers, by examining all the message traffic to and from the system it's protecting and blocking those it considers might be dangerous. While they've mainly been used in the past to protect the networks of big corporations, worries over Internet security mean there are now a number of personal firewalls, suitable for running on even the most humble Windows PC. These applications can help in two areas.

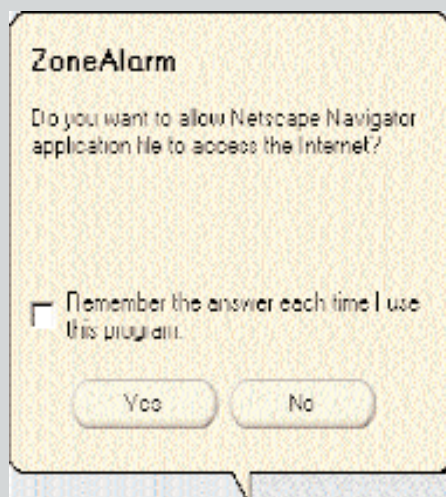
First, they look for unexpected messages or commands sent to your PC. What constitutes an unexpected message? Good question! Different programs might use different strategies to determine this, and by default they may just follow a few simple rules.

For example, the personal firewall may already have a list of the standard ports used by Internet services you want

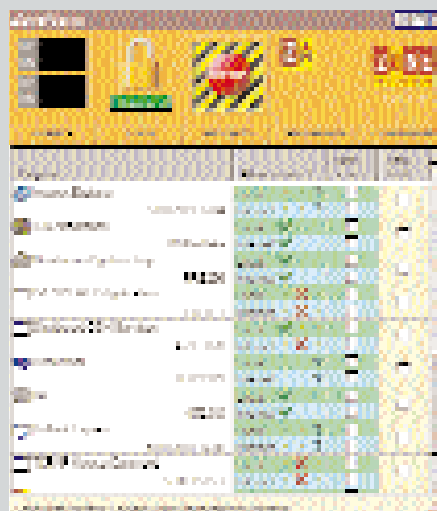
to allow – e-mail, Web pages, newsgroups and ftp, for example. When they receive a message to any other port, they can block it, keeping you safe from port-scanning activity.

What's more, many firewalls can display a warning when these 'scans' occur, some are even able to record the IP address of the culprit. In theory this means you can use a Whois tool (like [www.sampspade.org](http://www.sampspade.org)) to find out who owns that particular address, and e-mail them a complaint, along with the firewall's logs of the incident. Revenge on the cracker!

Sadly, it's often not as clear as that, and in practice we found lots of occasions where firewalls either blocked legitimate activity, or where the network traffic didn't appear to be related to any kind of cracking attempt. Even if it was, there's no guarantee the IP address would lead to the real culprit – the best crackers will cover their tracks.



↑ Firewalls attempt to monitor outgoing traffic, too, and ZoneAlarm is no exception. Run any program that tries to access your Internet connection, and you'll see this warning dialog asking if you want to allow this. If you know the program is safe, check the Remember box to be asked this only once.



↑ At any time you can review your current list of applications in the Programs dialog – a tick means the program may access the Internet, a cross means it cannot, and a question mark means ZoneAlarm will ask you first. You can change the status of any application, just by clicking on the new option.



↑ ZoneAlarm isn't as flexible as the Norton or McAfee firewalls, so the options in the Configure dialog are very simple. Usually you'll want to ensure ZoneAlarm is loaded at Startup, so you're always protected, and that the program checks for updates. It's important to keep all security software current.

## → Safety first

### Make sure that your files are protected

If your PC is set up to share files over a network, then it's possible you could be leaving them open to everyone on the Internet, each time you go online. Some people would advise you to install a firewall right away, but we would question that; it's a little like having a broken lock on your front door, and so deciding to build a barbed wire fence around your home. The fence may be useful, but the best approach is surely to fix the lock first. In networking terms, that means you need to consider these three issues.

### 1 File and Printer Sharing

If you're on a network in order to access other people's files, but no one actually needs to access anything on your own machine, you can easily make it secure by removing File and Printer Sharing. (You'll find that item on the list of network components at Control Panel\Network Configuration, click on it to highlight it, then select Remove).

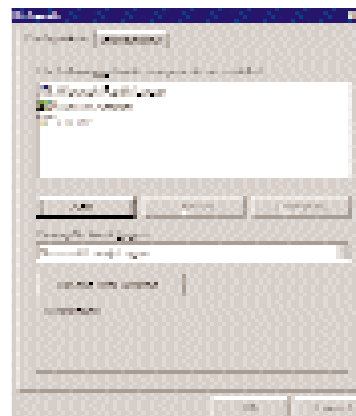
### 2 File shares

Perhaps you do need to share files? Then share them selectively, if possible. Sharing a single folder containing only data files is far more secure than giving users access to

your entire C: drive, your Windows folder, or other key locations.

### 3 Passwords

When you must share files, make sure you password-protect them. And we don't mean a password that's the same as the user name, or just 'password', or something equally guessable. Ideally your password should be 12 or more characters, not composed of real words (because then it's more vulnerable to dictionary attack), but rather contain a mixture of letters, numbers and other characters. And then you should change it regularly, perhaps every week or two. A hassle? Yes, but at least you'll be secure.



↑ Are you sharing files when you don't need to do so? Check the components listed under the Network icon in the Control Panel and make sure File and Printer Sharing isn't enabled.

## Getting personal

So, who needs a personal firewall, and why? The answers vary considerably depending on who you are.

The typical home user with a non-networked, standalone PC isn't at risk of someone cracking their PC while online. They are more likely to accidentally install a Trojan, so installing a firewall will make for a safer PC though the protection is by no means guaranteed.

Networked users with a single connection to the Internet definitely do need protection, but the typical personal firewall isn't really powerful enough for their needs. Getting something more industrial-strength needn't mean significantly more expense, though, and software like LANguard ([www.languard.com](http://www.languard.com)) and WinGate ([wingate.deerfield.com](http://wingate.deerfield.com)) provide the

extra capabilities and network management features required.

The best place for a personal firewall is perhaps for a small home or business network, especially where several PCs have their own Internet connections. This situation presents all kinds of risks, from crackers getting in, to Trojans sending information out, and finding a way to control these is extremely important.

Of course, deciding which firewall to choose is a whole new question. If you're a Linux user, for example, you'll find lots of advice at sites like [www.linux-firewall-tools.com/linux](http://www.linux-firewall-tools.com/linux) (a free firewall at [www.GatewayGuardian.com](http://www.GatewayGuardian.com)). But if you're a Windows user, you need look no further than the next page, where we review three of the most popular personal firewalls for the PC.

**Mike Williams**

## → Terrible Trojans

Be aware – they're available, they're dangerous and you don't need to be a genius to use one



↑ Who creates Trojans, and why? Visit the Cult of the Dead Cow (really!) at [www.cultdeadcow.com](http://www.cultdeadcow.com) to find out.

A Trojan is a malicious program similar to a computer virus, that is usually concealed with another, apparently innocent application. You might download and install that program, and be happily using it, but the Trojan has also been installed in the background.

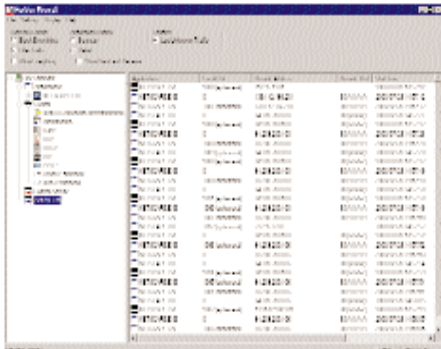
What can Trojans do? Just about anything the author likes, though in this case we're particularly interested in 'backdoor' programs. These unpleasant creations usually attempt to communicate with their author via IRC or some other means every time you go online. If they succeed, the cracker can then send commands back to your PC, and from that moment on your security is hopelessly compromised.

The Trojan SubSeven, for example, enables the remote user to browse your system just as easily as you can, viewing or running any file of interest. Even if you're not online, it can be set up to record keystrokes and feed them back at a later time, meaning that network passwords, credit card numbers, any personal information you type is automatically at risk. Try visiting [www.datafellows.com/v-descs/subseven.htm](http://www.datafellows.com/v-descs/subseven.htm) for the frightening full list of what it can do.

It's easy to dismiss this kind of program as a very technical form of cracking, perhaps something that needs a lot of skill or experience to use – but you'd be wrong. SubSeven is freely downloadable from [subseven.slak.org](http://subseven.slak.org), and one of the most famous examples, BackOrifice, may be found at [sourceforge.net](http://sourceforge.net). Alarming, when we checked the site it reported 2,529 downloads of BackOrifice the previous DAY. There's no way of telling how many of these were intended to be released as Trojans ([www.bo2k.com](http://www.bo2k.com) details some legitimate applications of the program), but it's still a scary figure; remember that the next time you download something from the Internet, and ask yourself how confident can you be that it's really safe.



↑ What can crackers really do to your system? Keep an eye on the latest security problems at sites like the Cracker News Network ([www.crackernews.com](http://www.crackernews.com)) and you'll stay up-to-date.



## McAfee Firewall 2.1

**PRICE** £30 **EX VAT** £26  
**ONLINE** <http://software.mcafee.com>

**Easy to set up and use, but enough functions for the serious user**

**F**ormerly Conserve Private Desktop, McAfee Firewall is exceptionally easy to use. Installation is particularly straightforward; the Firewall Configuration Assistant is automatically launched so you can set up the program, though firewall first-timers will do nothing more than click on the Next button, which is probably sensible as the defaults are entirely acceptable.

In use, the program proves to be very unobtrusive. Run a program like RealPlayer that tries to access the Internet, and McAfee Firewall displays a little dialog asking if you want to accept this. Click Yes and that application is considered to be trusted, so you won't be asked again. Incoming traffic blocked by the firewall is handled just as quietly, logged in case you're interested, but not troubling you with annoying warning messages.

Ease of use doesn't necessarily mean shallow, more advanced users will find plenty of configuration options here. You can configure the program for individual network protocols (PPTP, ICMP, RIP, NetBIOS and more), or for different network adaptors, or even choose to log or block fragmented packets. Interestingly, you can even password-protect the program settings, handy if several people use your PC and you want to maintain a consistent level of protection.

We liked the McAfee Firewall; while not packed with extra features, it performs the basic firewall functions very well, and is suitable for all levels of users.

### PCPlus Verdict

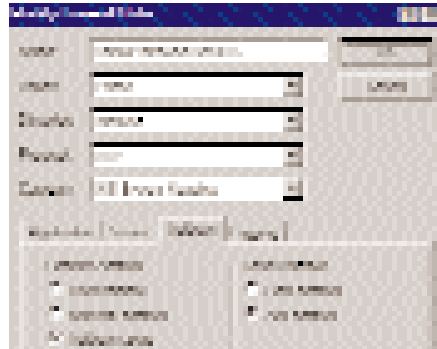
#### MCAFEE FIREWALL 2.1

✓ **FOR** → Easy to use  
→ Clear interface

✗ **AGAINST** → Short on features

Functionality .....7  
Configurability .....7  
Ease of use .....9  
Value for money .....8

**OVERALL** .....8



## Norton Personal Firewall 2000 v2

**PRICE** £36 **EX VAT** £31  
**ONLINE** [www.symantec.co.uk](http://www.symantec.co.uk)

**It can do almost anything, but only if you know enough to set it up**

**W**hat do you expect from a firewall? Norton Personal Firewall 2000 monitors and can trap incoming and outgoing Internet traffic, just like the McAfee firewall, and is even more flexible. Run a program that tries to access the Internet, and you can choose to allow it this time, prevent it, or define a complex rule that the firewall can use in future. It's powerful, but could easily become intimidating for the less technical user.

On the other hand, if you're familiar with networking and the Internet, you'll find Personal Firewall 2000 to be extremely configurable. The advanced options permit you to set up rules allowing or preventing Internet access based on the application, port, service, IP address (or range of addresses), and much more.

In addition to the firewall functionality, Personal Firewall 2000 can stop your browser downloading ActiveX controls or Java applets, or accepting cookies. Your browser probably already has global settings for this, but Norton goes one step further by allowing you to set separate rules for individual sites (so you can have Java working at trusted sites where it's necessary, but turned off everywhere else).

The Norton Personal Firewall is a feature-packed program with all the security capabilities most desktop users are ever likely to use. It's complex and not entirely intuitive to use in places (McAfee Firewall is much better here), but the extra power means Norton wins by a head.

### PCPlus Verdict

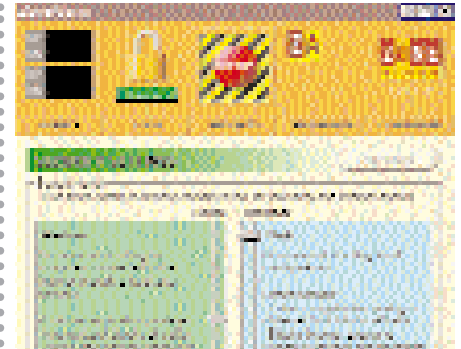
#### NORTON PERSONAL FIREWALL 2000 2.0

✓ **FOR** → Packed with features  
→ Extremely configurable

✗ **AGAINST** → Occasionally poor user interface

Functionality .....10  
Configurability .....9  
Ease of use .....6  
Value for money .....9

**OVERALL** .....9



## ZoneAlarm 2.0

**PRICE** Free for personal use/ \$20 otherwise  
**ONLINE** [www.zonelabs.com](http://www.zonelabs.com)

**Simplicity itself to use, but lacking flexibility in its application**

**Z**oneAlarm may be free for personal use, but that doesn't mean it's lacking in functionality. It starts monitoring both incoming and outgoing network traffic just as soon as you've installed it. If anything, its protection is more extreme than either Norton or McAfee, and ZoneAlarm easily blocked the greatest amount of incoming traffic. Unfortunately most of it appeared to be entirely legitimate requests from mail and news servers, so this isn't necessarily a good thing.

You can configure ZoneAlarm to reduce its sensitivity, but only very generally. The program has opted for simplicity over power, so where the Norton product allows you enormous flexibility in creating your own firewall rules, ZoneAlarm simply allows you to choose High, Medium or Low protection.

Of course, that simplicity is an attraction in itself, and ZoneAlarm is a useful firewall for users who really don't want to learn about ports and protocols. It's also generally good at warning you which programs want to access the Internet, and enables you to view and modify the permissions for these applications at any time.

If you wish to have a firewall for personal use, then it's hard to argue with the fact that this is free (you can download it from the **PC Plus** Website at [www.pcplus.co.uk](http://www.pcplus.co.uk)). However, if you are a business user, or you need more flexibility from your firewall, then the case for ZoneAlarm is much weaker, and we'd recommend you go for something with a bit more built-in functionality.

### PCPlus Verdict

#### ZONEALARM 2.0

✓ **FOR** → Simple interface  
→ Price

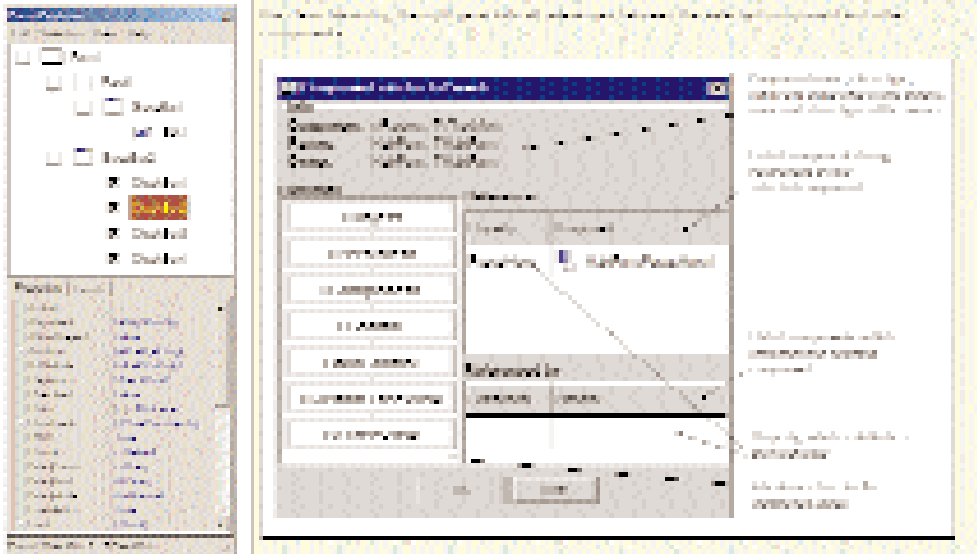
✗ **AGAINST** → Not very flexible

Functionality .....6  
Configurability .....6  
Ease of use .....9  
Value for money .....9

**OVERALL** .....7



↓ Here's Form Explorer running in 'Integrated' mode. We found that Form Explorer worked much better (and so did Object Inspector!) when they were configured as separate, dockable windows.



PROGRAMMING

# Form Explorer for Delphi 5 v2.01

PRICE \$20 for a single user SUPPLIER Vladimir Vinogradsky  
ONLINE <http://members.xoom.com/VladimirV/> PUBLISHER Vladimir Vinogradsky

Form Explorer for Delphi is one of the less ambitious ISE add-ons, but does it give you enough functionality?

One of the great things about Delphi and C++ Builder is the way in which these development systems can be extended using what Borland refers to as its Open Tools API. The quintessential add-on for Delphi is, of course, the awesomely huge CodeRush system available from Eagle Software ([www.eagle-software.com](http://www.eagle-software.com)) but if you've no experience with IDE add-ons, you might wish to start with something a little less ambitious such as Form Explorer. Then again, you might not.

In the glowing words of its author, Form Explorer is a 'supercharged Object Inspector' for Delphi. In effect, Form Explorer enhances the Object Inspector window within the Delphi IDE. You'll also notice from the product title that it's specific to Delphi 5. This is because of the way in which Form Explorer needs to get into the undocumented internals of the IDE in order to work its magic. In fact, the author, Vladimir Vinogradsky, recommends that ideally, you should be using the latest build of Delphi 5, Update Pack 1, which I was.

- Minimum requirements Win95/98/NT/2000, 32MB RAM, Delphi 5, 500KB disk space
- Tested on Win2000, 500MHz Intel, 256MB RAM
- Available on Web download
- Additional information A 30-day trial version of Form Explorer can be freely downloaded from the author's Web site

With Form Explorer installed, you'll find that the Object Inspector has acquired a new, hierarchical tree-view pane which graphically displays all the components associated with the current form. This window can be disconnected from the Object Inspector and docked to other IDE windows just like the 'native' dockable tool windows that form part of 'barefoot' Delphi. You can 'drill down' into container classes such as group boxes, panels, and so forth, viewing the components contained therein. Probably the nicest single feature of Form Explorer is the way in which you can drag one or more components from one container to another, or to the topmost form. As seasoned Delphi developers know, cutting and pasting components from one container to another is generally a very frustrating exercise, causing component references to be lost, property values to get reset to their default values and worse. Using Form Explorer eliminates these problems. The add-on itself consists of a single 300KB DLL which is automatically installed into the Delphi IDE when you

run Form Explorer's set-up program. There are various summary windows which can be invoked from Form Explorer, including a component information window which gives a graphical display of the class hierarchy associated with the currently selected component. This window also shows which controls refer to the current component, which controls it refers to, and so on.

On the negative side, I felt that the Form Explorer window had a rather amateurish, clunky look and feel, with a solid white background which couldn't be changed. By default, the tree view displays components as 28 x 28 pixel bitmaps (same size as the component palette) which makes them look far too big. They can be reduced to 20 x 20

← Despite its other shortcomings, Form Explorer does include some good documentation, with screenshots and explanations of the major parts of the utility.

pixels, or you can choose not to display bitmaps at all. Much more annoying is the way in which things rapidly go pear-shaped when using Form Explorer

in so-called 'integrated' mode, that is, with Form Explorer connected to the Object Inspector window itself. For example, go to the Name property of a component in Object Inspector, select the last couple of characters and hit the 'Del' key to remove them. You'll instantly see a dialog box asking if you really want to delete the component. I could give you more examples of the same but, in a nutshell, Form Explorer tries to take responsibility for Object Inspector's keyboard processing – and often gets it wrong. I found that integrated mode was buggy and unusable, the IDE being much happier when Form Explorer was configured as a separate, dockable window.

I felt that the amount of useful extra functionality provided by Form Explorer was disappointingly small, especially when balanced against the buggy quality of the software and the poor user interface. The only thing going for it is the ability to quickly drag a control from one container to another, but if you switch a standard Delphi form into View As Text mode, you can do the same thing using the built-in text editor!

Dave Jewell

PCPlus Verdict

FORM EXPLORER FOR DELPHI 5 V2.01

✓ FOR

→ Makes it easy to drag a control between different components

→ Cheap

✗ AGAINST

→ Brings very little new functionality to the party

→ User interface is awkward and buggy

Specification.....

Quality.....

Performance.....

Value for money.....

OVERALL.....

4

6

5

7

6

**T**here's an enormous sense of satisfaction when one finally gets a recalcitrant piece of software up and running properly – and in this case it was greater than ever. Once you've negotiated the not inconsiderable hurdle of setting up this piece of software, you can be sure of surfing the Web privately and anonymously. It stands between your browser and the Internet receiving requests for Web pages from your browser and redirecting them to a public, anonymous proxy server before they're passed on to their real destination. This means your movements can be hidden from all the Web sites you visit.

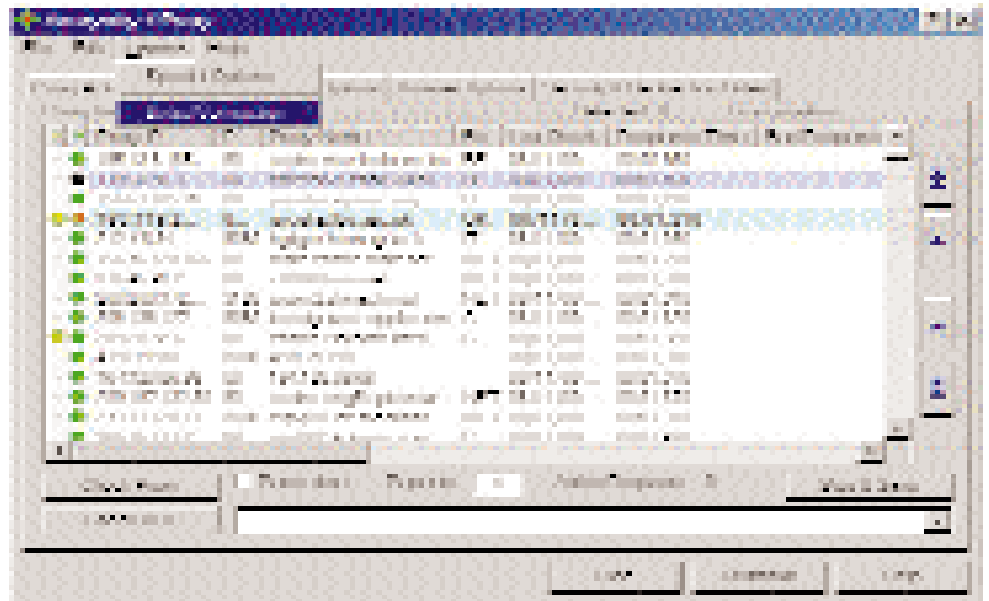
Many of you will know that your movements through the Internet can be tracked by the simple expedient of the site you just visited telling the next site your IP address and its IP address. This creates a continuous and never-fading thread in cyberspace which has not only your name, but possibly your e-mail address and other personal details all over it. And depending on the policy of the Web site, you might not get access to the information you want without this happening. Also, your visit is likely to be registered on the site, a cookie placed on your computer's hard drive and a profile built for advertisers to use. In extreme cases, malicious Web sites can automatically exploit security holes in your computer's software to cause damage to files and data.

However, not everyone knows that it's widely suspected – even agreed – that governments and other organisations publish dummy Web sites on controversial topics so they can monitor those who are interested in them.

Truly anonymous proxies generate unique IP addresses that shield your current connection when relaying requests for Web pages and files from ftp archives. The difficult part is finding them and testing their anonymity. This is where Anonymity 4 Proxy comes in. The full version contains a database of all the anonymous proxy servers iNetPrivacy located all over the world (the trial version only allows for 25, and only 11 are actually included, but you can add more) and provides tools to test and log on onto them. Because all traffic travels through A4Proxy, you can view all the information sent out by your browser. A4Proxy will also block most cookies from reaching your hard drive, and those it can't it will prevent from being seen by the site.

However, like most really useful things to do with the Net, it takes quite a bit of setting up and a tutorial or two to get you going. And only continued use of the product will increase your knowledge and know-how. You'll also gain a degree of insight into the inner workings of the Internet, and the confidence to talk about proxy servers and their benefits in public.

Before you download and install A4Proxy it's most important to find out from your ISP whether it will allow you to use proxy servers (some block access), and whether your ISP blocks inbound traffic on



↑ The final check is to make sure the 'direct connection' is unchecked on the Options menu. If this remains checked (as is the program default for some obscure reason) you will connect to Web sites directly and not through a proxy, despite having checked them all for their anonymity and chosen a default.

## NET PRIVACY SOFTWARE

# iNetPrivacy Anonymity 4 Proxy

**PRICE** \$45 (£28) **Publisher** iNetPrivacy Software **PHONE** 001 770 319 2718  
**WWW** www.inetprivacy.com **E-MAIL** support@inetprivacy.com

**Anonymous surfing and downloading guaranteed.**  
**A very useful weapon in the fight for personal privacy**

certain ports – specifically 80, 8080 and 3128. You should also realise that this software will almost certainly not work the first time you try to check and log on to a proxy server. However, there is a pretty good troubleshooting section in the Help file, which takes you through the most common problems. Should that fail – and that's likely if you have a program that's blocking one of the above mentioned ports – iNetPrivacy's technical support is also pretty good: knowledgeable, responsive, polite and effective.

Once you are up and running, you should barely notice any performance degradation, which is unusual for a product which adds an extra layer of privacy. You can also run up to three PCs connected over a LAN from one copy of A4Proxy, and it will even work alongside many other privacy and security applications (though these will need special handling during proxy checking). The only rider is that you'll always need to make sure at least one of the above mentioned ports remains clear, but there's a handy compatibility test on the Help menu to lend a hand with this.

You can only surf anonymously with this product. You can't use it to send e-mail, join chat rooms, or read or post to Usenet – but guess which products iNetPrivacy is planning to release next? That's right, anonymous e-mail, chat and newsreader products. If they're all as effective as this one, we maybe part of the way to claiming the Internet back for those who really need it. And that is, us!

**Jason Thomas**

## PCPlus Verdict

### VERDICT HEAD

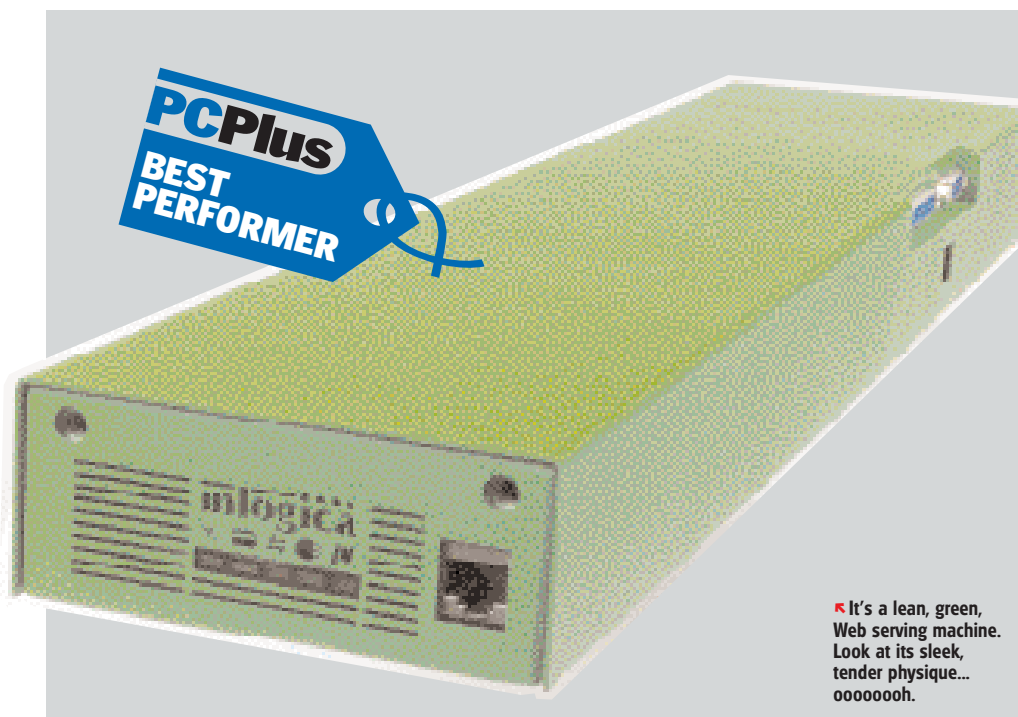
#### ✓ FOR

→ Truly anonymous surfing

#### ✗ AGAINST

→ Time consuming and complex set up

Specifications .....	7
Quality .....	8
Value for money .....	8
Performance .....	9
<b>OVERALL .....</b>	<b>8</b>



## WEB SERVER

# InLogica P-Series ThinWeb Server

**PRICE** £2,043 **EX VAT** £1,739 **SUPPLIER** InLogica **PHONE** 01784 494420 **WWW** [www.inlogica.com](http://www.inlogica.com)

**With four servers per 'U', you could fill a rack to bursting point with the P-Series**

**T**here has been such a shift in the Web server market of late that when we decided that this month we really must review an NT-based server, we simply couldn't release one from the grasp of the few manufacturers offering them.

The \*nixes are definitely on top in the Web server world: Unix, Linux, and all the variants have appealed to the purse strings of CFO's around the world, and so it was little surprise to find the InLogica P-Series server was a Linux box – Slackware 7.1 in this case.

### Looking a little green

Naturally, the first thing that strikes you about this particular server is its appearance. The server measures 1U high, and just over three inches wide, meaning you can fit four P-Series servers side by side in a standard 1U housing (a mounting bracket is supplied). Distributed around the edges of the unit are all the ports you will need. A Single 10/100 Ethernet port graces the front of the unit, parallel, VGA, and PS/2 are located to the right-hand side. Finally, power and two serial ports are at the rear of the unit.

There is only one PS/2 port on the side of the unit, so InLogica have included a PS/2 splitter cable to enable you to connect keyboard and mouse to the same port. On our sample unit the PS/2 port didn't quite match up to the hole in the casing, and so the splitter lead would frequently pop out with the weight of the two cables attached to it. In day-to-day use you are not likely to have keyboard and mouse wired up anyway, so this isn't too serious a problem.

Once you have powered up the unit, five LEDs on the front panel indicate the status of the server – power, drive, and network activity and so on. The P-Series has a 13GB Ultra ATA Hard Drive inside, secured to the base of the unit by four screws. We were concerned about the heat this drive would generate, trapped in the centre of the unit, but touch temperature remained comfortable throughout testing. Ventilation is an issue with this server, given its compact nature – a single fan at the rear of the unit draws in cool air, which is passed over each of the components (the Pentium III has a separate fan and heat sink) and then expelled at the front of the unit. The expelled air temperature, again, gave us

little cause for concern. We would have felt more comfortable if the unit wasn't relying solely on a single fan for ventilation.

### Intel inside

The Intel 82559 Ethernet interface is pretty faultless – we ran a load test simulating the typical Web serving activities of 50 users, and set five local PCs to ping the server with large data packets – each PC ran just under 60 instances of ping.exe. With all this going on, response times were still quick to instantaneous on the LAN. The lowest point that system resources dropped to during our 60 minute test was 95 per cent. These results were very impressive for a machine with only a single Ethernet port.

An excellent real world test of a server is with RealServer – the standard server for streaming media on the Web. You can pick up RealServer basic, which serves 25 feeds for free, from:



[www.realnetworks.com](http://www.realnetworks.com)

Suitably armed with a freshly installed RealServer (and the ping floods mentioned earlier) we set about our task of pushing the P-Series' facilities to the extremes. At 13:30, the **PC Plus** office ground to a halt as every free PC (and some that had previously been used for constructive work) sat and watched a twenty minute long realvideo clip. With all of this load on it, the server still refused to so much as bat an eyelid – sitting at 95.4 per cent of resources free. This is astounding performance, quite remarkable from a server of its physical size.

We installed RealServer using a combination of WebMin (more on that later) and a regular telnet connection – it's unfortunate that there was no SSH Secure Shell support on the server side. It probably wouldn't have taken too much effort on the part of InLogica to add OpenSSH at build time. Telnet is looking more than a little dated now, and tools for packet sniffing telnet traffic are far too widely available to safely condone the use of anything other than SSH.

Having seen the machine perform so well at streaming data, we were somewhat dismayed to see the default WebMin installation. If you are not familiar with WebMin, you can take a look at



[www.webmin.com/webmin/](http://www.webmin.com/webmin/)

– the software is an excellent Web administration suite for just about all of the major flavours of Linux currently on the market. By default, WebMin installs with an easy-on-the-eye colour scheme, with the various tools spread across multiple 'pages' on a tabbed dialog. InLogica, in a bid to brand their WebMin installation have destroyed that. A hideous dark green and yellow colour scheme gives the impression that it was designed by 'little Sally, the CTO's daughter'. Useful features such as the DHCP server configuration tools and



## → Distribution wars

**Choosing a Linux distribution for a server is no easy task, and we've seen them all...**

Linux Slackware 7.1 is an interesting choice of distribution – and not one that we would have expected. Slackware is an extremely powerful distribution for server – but in order to get that extra boost in stability and performance, there has been something of a trade-off in usability. Slackware is by no means the hardest distribution to use, but neither is it as easy to run as, say, RedHat or SuSE.

As an example, when you switch the unit on the first time, you have no idea what the IP address of the box is, what networking services are configured and so on. To combat this problem, InLogica have produced a simple setup script that root can run by typing 'inlogica-setup' when logged in. This console script takes IP information, host and domain name etc, then configures the server accordingly – most changes don't take effect until you restart the networking daemons, so it would have been nice to see the script do this automatically. We can't complain too much, though, as the inlogica-setup script makes an otherwise arduous task for Slackware really very easy.

bootup options have been stripped out – for no good reason. InLogica would be wise to return the WebMin installation to its default appearance and functionality.

Despite the butchering of the WebMin interface, it is still a solid Web administration tool, and includes an excellent file manager and numerous server configuration options, so full marks for the adoption of top quality Open Source software, there.

## RTFM – read the ahem manual

Even with the WebMin interface, this server isn't so easy to set up that it can afford to dispense with a paper manual. The InLogica manual is specifically tuned to this server, which is a good sign of well-thought out documentation. Far too many computers of different types are bundled with hideously generic manuals. The documentation is easy to read, but is a bit skimpy at a mere 16 pages.

It walks you through the basics of server admin, gives a brief tour of WebMin – as this is a custom version even those who are more experienced could benefit from taking a brief glimpse at the manual. All in all, it is reassuring to receive a paper manual with a server – the vision of the 'paperless office' neglected to mention that we'd all be forced to use PDFs forever after!

## Just £2,000 on the road

£2,000 all inclusive is a good price for a robust server, and it's good to see that InLogica haven't decided to astronomically boost their prices to take in to account the physical features of the unit. It's a shame that InLogica decided to do away with all removable storage on the unit itself – if your system falls over horribly, you can't just insert a setup CD and fly. Including a CD-ROM drive would have increased the size of the server.

Should anything really horrible happen to your box, you're going to have

to call InLogica support, or worse still, return your server to base. In a world where uptime is all, this is bad news. That said, there is absolutely no reason why this server shouldn't keep on trucking until technology has outgrown it, and keeping it running is simply no longer an option!

This configuration came with 128MB of SDRAM, and the maximum that can be held at any one time is 256MB, which is not a lot for a serious web server. If huge corporate hosting situations aren't your thing, however, and you're just looking for a server you can co-locate in a rack somewhere, then the P-Series is ideal for this use. All round then, it's a rock-solid server with outstanding performance, earning a well deserved Best Performer award.

**Rob Fenwick**

## PCPlus Verdict

### INLOGICA P-SERIES THINWEB SERVER

#### ✓ FOR

- Size!
- Great data transfer rates

#### ✗ AGAINST

- Single fan and Ethernet
- No removable storage

Specification .....9

Quality .....10

Performance .....10

Value for money .....9

**OVERALL .....9**

## → Come inside and look around

### FORCED VENTILATION

A single fan brings air into the server, and expels it through a grille at the front.

### FIXED STORAGE

The 17GB hard drive is held in place by four screws at the base of the unit

### PSU BLOCK

The guts of the Power Supply Unit are not shielded, but separated by a metal grid.

### PENTIUM III

The 600MHz Pentium III has a dedicated cooling fan, and is the first device to be cooled by the rear-mounted fan.

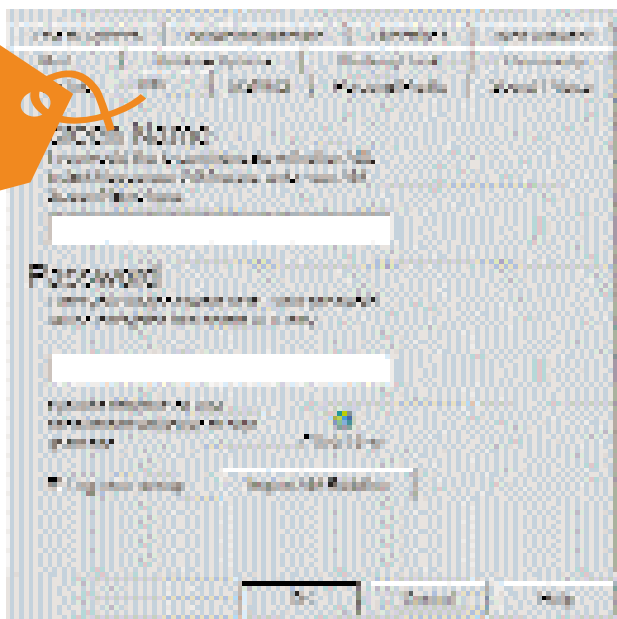
# Messaging grows up

Jason Thomas checks out three of the latest instant messengers

**I**nstant messaging has been around for some years now, and has progressed way beyond a gimmicky Net pager; successive releases pack in more features and integration options – and they're still all free. Instant messaging is also becoming a genuine business tool and the market place highly competitive. AOL is also being investigated for a possible monopoly – its ownership of ICQ gives it total customers of around 170 million – more than all the other services put together.



→ PowWow is the only IM in this group to work with both AIM and MSN Messenger – although you do need to have signed up for all three to benefit.



[www.powwow.com](http://www.powwow.com)

## PowWow 4.2

Integrated voice options make PowWow shine

**T**here are various ways to install PowWow, but the main two are direct from the Web site or an FTP download and install. And at 2.7MB it's a reasonable download time. This IM's impressive range of features, improved interface and better-than-average interoperability make it the best of the bunch in this test.

It uses a tabbed interface to enable switching between your 'buddy' lists, real-time stock quotes and weather updates – all with a US bias, of course. But where PowWow really shines are its integrated voice options (you'll need to download the text-to-speech add on to use them) and groupware-type features.

The InstaVoice feature acts as an electronic answering machine, allowing you to record and send voice messages

of up to a minute to other PowWow users. Real-time chats are also an option.

You can establish peer-to-peer contact with up to seven other users and pass files and sounds back and forth, exchange drawings on a whiteboard, even lead the group on a Web tour by remotely directing their Web browsers to selected pages.

In addition to its impressive features list, PowWow 4.2 currently interoperates with AIM and MSN Messenger, allowing your users to converse with users of those IM clients, although both Microsoft and AOL are increasingly fickle about who can interoperate so these services may have been blocked, or soon could be.

PowWow isn't as easy to use as ICQ and this along with its mysterious lack of threaded messaging (it originally made its name as a threaded collaboration tool for workgroups on private LANs) prevent it getting a higher mark.

That notwithstanding PowWow easily outshone the other IMs in this roundup.

**PCPlus Verdict 8/10**



↑ ICQ is the only IM in this test to offer two levels of use – simple and advanced – allowing you to grow into the product.

[www.icq.com/download](http://www.icq.com/download)

## ICQ2000 beta

ICQ2000 beta is a 6MB download, so be ready with a cup of coffee. This is because it's been radically improved and new features added. It now sports a new interface, simple or advanced menu options, a short-cut bar, an ICQ mail button, tips, improved privacy options, a tips feature and much more.

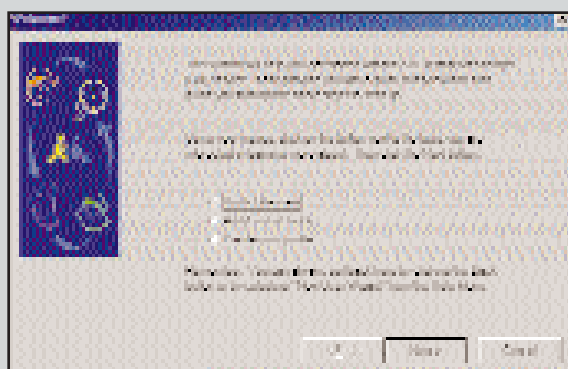
To start using an instant messenger you need to know if people you know are using the system. So ICQ scans your address books to see if there are any current ICQ users there. And with 110 million downloads of the latest ICQ beta – this product is continually in beta – you do stand a good chance.

Another uniquely useful feature for first-time IM users is simple and

advanced modes, which means you can get started and then switch to advanced mode when you're used to it. And the ICQ site itself acts as a kind of portal into the world of instant messaging; you can search for friends, join discussion groups, download files, and check out plug-ins for ICQ itself.

A couple of shortcomings though. Like so many IMs you can't speak to members of any other system, even AIM, AOL's other IM! Also, there's no file transfer, whiteboarding, or BBS, which means that for all its style and user-friendliness it's still a bit gimmicky and not a serious business tool.

**PCPlus Verdict 7/10**



↑ AIM does its best to get you going from the off with a set of new user wizards to help you through the basics of setting up 'buddy' lists and creating your user profile.

[www.aim.aol.com](http://www.aim.aol.com)

## AOL Instant Messenger 4.1

AIM 4.1 is a 2MB download, and despite its feature-rich spec sheet and useful new user wizards to get you started, it still lacks the co-browsing option, whiteboarding, interoperability and features of PowWow, and it's this that prevents it from scoring higher in this roundup.

It does include voice chat features, called AIM Talk, although if you use a firewall, you will have difficulties setting it up unless the person you are hoping to speak to has the same firewall set up. Also, with over 60 million users, you'll find it difficult to choose a unique screen name that you're going to be happy with.

Other handy features include alerts

for incoming e-mail and instant notification when stocks move up or down a specified amount. E-mail notification works with both AOL and POP3 mailboxes and can be set for multiple accounts. An Instant Images feature lets users send and receive photos, images, sounds, and animation within chat sessions.

Also business travellers without access to a computer with an AIM client can use AOL's Instant Messenger Quick Buddy service. Quick Buddy allows you to exchange instant messages with other AIM users using only a Web browser.

**PCPlus Verdict 7/10**

➤ The MaxAttach fits over 100GB of storage in to one small blue box – very nice indeed.



## NETWORK STORAGE

# Maxtor MaxAttach NAS 3000

**PRICE** £1,643 **EX VAT** £1,399 **SUPPLIER** Maxtor **PHONE** 01923 712448 **WWW** www.maxtor.com

**So much storage in such a small space, and it looks good to boot**

**T**he traditional method of adding more storage space to a server is to expand a RAID array by adding higher capacity drives. If you are a SOHO business or SME your servers may not include a RAID configuration, so you may find yourself up against the wall when your users' requirements exceed the space you can supply.

We here at **PC Plus** know how much of a problem an over-loaded server can be – we've recently replaced a gargantuan Netware server which ran out of space monthly, with just under ten individual Linux servers. As the company grew, our previous server simply couldn't handle the strain being put on it. If you are in a similar situation, then the Maxtor MaxAttach may be the answer to your prayers.

## What's in the box?

This unit is, essentially, a small blue box with just over 100GB of storage space tucked away inside. There's nothing on the back apart from a 10Base-T ethernet port and a power socket. An ethernet lead is included in the box, so it's simply a case of plugging the MaxAttach in to a hub or switch, and powering on. The included MaxNeighborhood software detects the machine on the network, and reveals the IP address that it has set itself up with. If there's a DHCP server on your network, it will use the address assigned to it by the server. If you double click on the server name in MaxNeighbourhood, your web browser connects to the server and opens a Java setup tool.

We had some major hair-ripping problems setting up the server – once we'd run through the setup utility and assigned an IP address to the machine, it would reboot, choose a completely different IP, and the java interface would promptly fall over. A quick phone call to the excellent technical team at Maxtor revealed that, as the machine had come from a loan pool, the previous tester had been tinkering a little too much. We restored the server to its factory defaults, and then we were cooking with gas.

Once the MaxAttach is set up, it appears in the network neighbourhood as 'just another computer' with a read/write share ready and waiting. You can map a network drive to that share, and voilà, you have just increased your server's capacity by 100GB! Server

administration is handled by a Web administration interface at **http://servername/admin**. As we've already noted, the admin interface makes heavy use of Java – when it's all running properly, it works extremely well. The interface gives you an at-a-glance guide to what's happening on the server at any given time, and also allows you to create and control shares – you can protect shares with a username and password, or pass off authentication to a remote server in addition to creating anonymous shares.

## High capacity

There are two Maxtor hard drives inside the unit itself, and these can behave in one of three methods. By default, the two drives act as one large spanned disk of 10731GB capacity. In this configuration, if either disk fails all data is lost. Alternatively, you can run the unit as two individual disks of 53GB each, maintaining over 100GB of storage but on two disks – if one drive fails, you only lose the contents of that drive. The final configuration is to have one drive active, and one mirrored – this way you only (!) get 53GB of storage, but the contents of the active drive are constantly backed up to the mirror, providing almost complete data security.

The MaxAttach is powered by the FreeBSD operating system, so as well as the SMB drive sharing facility, you can also FTP in to the server, and if things get desperate you can telnet in and run the usual array of BSD / Unix variant commands. Transfer rates were perfectly reasonable, though not particularly outstanding – data transfer was fast enough to stream RealVideo files off, though. As for complete file transfers, we transferred a 35MB uncompressed graphic in 30 seconds. Transfer isn't fast enough to work live on large files remotely. Given the cost of the unit and the terrific drive capacity, we would have liked to have seen a second Ethernet port.

All in all, however, the MaxAttach provides a complete network storage solution in a stylish box, and comes in a rack mount configuration if required. Now, if you'll excuse us, the entire **PC Plus** editorial team is off to beg Maxtor to let us keep it.

**Rob Fenwick**

## PCPlus Verdict

### MAXTOR MAXATTACH NAS 3000

✓ **FOR**

→ Lots of space  
→ Plug-and-play

✗ **AGAINST**

→ Price

**Specification** ..... 10  
**Quality** ..... 9  
**Performance** ..... 7  
**Value for money** ..... 9

**OVERALL** ..... 9



**1** Network Gives an indication of network traffic passing through the port – this should be flashing even when the server is not being accessed.

**2** Drive This LED gives a basic indication of whether or not the server is in use, as it flashes when the drives are accessed. At-a-glance server monitoring.

**3** Status This red LED illuminates when something is wrong with the server – you can use the accompanying manual to decipher the flashes.





## INTERNET PC

# Mesh Internet Design PC

**PCPlus**  
BENCHMARK  
**1.52**

**PRICE** £1,879 **EX VAT** £1,599 **SUPPLIER** Mesh Computers **PHONE** 020 8208 4705  
**WWW** www.meshcomputers.com **E-MAIL** sales@meshplc.co.uk

## A fast machine, custom built for the Web designer

**M**esh computers has had an enviable record in our PC Plus group tests and has seldom been out of the awards. It has a reputation for supplying performance PCs without compromising the build quality and component specifications. Most manufacturers sell systems at specific price breaks. You choose your price and find out the best spec you can get. This has created some great prices across the board but does pressure companies to produce the most for a price and often compromise the specification.

Over recent months, many manufacturers have started to diversify from selling price-banded systems and began to produce bespoke systems targeted at a specific market. I've seen dedicated video machines, graphics design and audio workstations. Each machine has specific hardware and

software chosen for their intended primary use. Mesh has moved into this area with its unit aimed at dedicated Web design – The Mesh Internet Design Machine.

The system is built around a Slot A main board fitted with a 750MHz Thunderbird AMD processor. This comes from Gigabyte (GA-71XE) and is fitted with the AMD 751/756 chipset that supports up to four hard drives at ATA66. Other features include four USB sockets, two at the front and an extra socket for two more on the board. The board supports processors up to 1GHz and uses a clock generator that can be adjusted from 90 to 115MHz. Mesh supplies 128MB of RAM but with three sockets each able to take 256MB you could expand this up to 768MB.

A dual head Matrox G400 card handles graphics. This is one of the best all-round cards we've come across. It may not be quite as fast as the latest nVidia gaming cards but for general-purpose use it's hard to beat. You may well wonder why a dual head? Well, this is where this system starts to get interesting. Mesh doesn't just supply one monitor, it supplies two. These are Mitsubishi natural, flat 17-inch monitors. You can't get much better when it comes to good

definition and a host of OSD functions to set the screen up – and you'll have two of them to play with! With two monitors on the Matrox card, you'll be able to view dual windows on your operating environment. As this machine is aimed at the Internet designer, this is a real bonus. You can view your HTML code on one monitor and at the same time see the output in your browser on the other.

Web design is the main feature of this system and to complement this Mesh has included some of the best Web-based software that you can get your hands on. The three main packages are from Macromedia and include the classic Dreamweaver 3. A cross platform (Mac & PC) Web development application that enables the rapid development of individual pages and full Web sites. Pages can be viewed and graphically edited with additional windows showing the HTML code alongside, hence the two monitors. Mesh has also included Flash. Flash movies are interactive vector graphics and animation for Web sites. You can use Flash to create navigation controls, animated logos and animations with synchronised sound. Flash movies are vector-based graphics, so they download rapidly and scale to the viewer's screen size. The other Macromedia software is Fireworks which combines both bitmap and vector editing tools. In Fireworks everything is editable, all the time. It's fully compatible with Dreamweaver and Flash, completing the three Web design applications.

A SoundBlaster SB live card is included, as are DVD and CD-RW drives. The sound output is to a pair of PCWorks four point surround sound speakers, an ideal combination. The CD-RW drive is useful on a Web designer PC. Finalised sites can be written to CD with all their graphics files. Web sites can be a bit bulky, especially if they use a lot of graphics. Sending them to customers on CD ensures that most people will be able to install the new pages on their Web site or view them on their own PC.

At over £1,800 this may seem a little expensive but you get a fast PC with two good quality monitors. Add to that both DVD and CD-RW drives, a good sound system and nearly £400 worth of software and it starts to look very reasonable.

**Paul Warner**

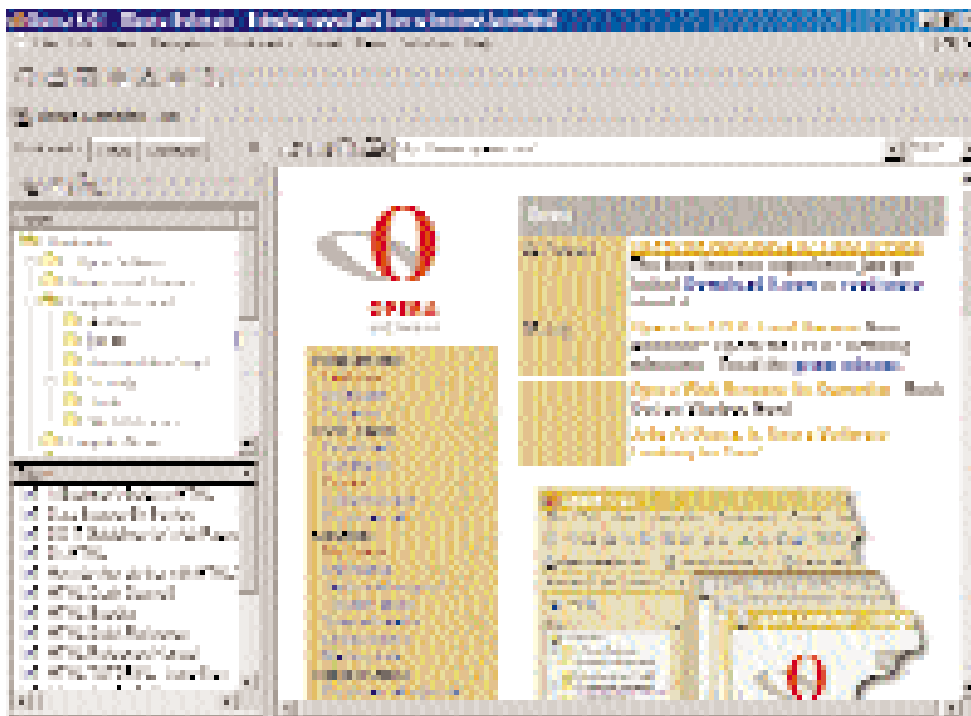
## PCPlus Verdict

### MESH INTERNET DESIGN PC

✓ FOR	✗ AGAINST
→ Fast machine tailored for the Web designer	→ Would benefit from some general office software for word processing
→ Good documentation, support and warranty	
<b>Specification</b> .....	<b>9</b>
<b>Quality</b> .....	<b>9</b>
<b>Performance</b> .....	<b>9</b>
<b>Value for money</b> .....	<b>9</b>
<b>OVERALL</b> .....	<b>9</b>

## → Performance results

Sysmark	144	Video2000	2,038
Office Productivity	140	3D Mark800 x 600 x 32	2,945
Content Creation	150	3D Mark 1,024 x 768 x 16	2,695



## BROWSER

# Opera 4.01

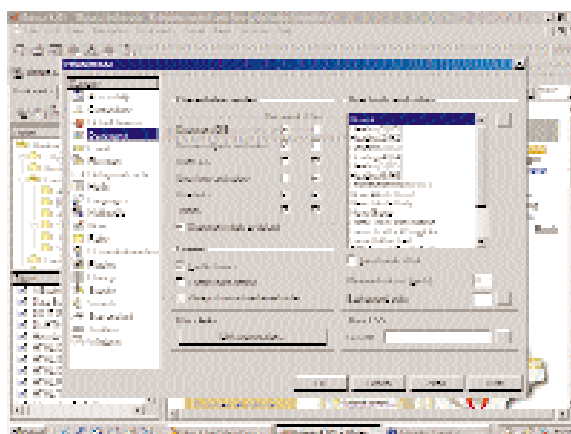
**PRICE** \$39 **SUPPLIER** Opera **ONLINE** www.opera.com. Available as a 1.8MB download

**A browser that outclasses and outperforms both Internet Explorer and Netscape Communicator**

**O**pera hails from Norway and has so far reached its one and a half million users mainly through word of mouth, not by getting its browser bundled with an operating system. It distances itself from its two better known rivals in two ways. First, it does not treat you like an idiot and places plenty of options and information at your fingertips. Second, and perhaps more importantly for Web developers, it does not use any proprietary code but instead sticks firmly to only standard HTML and so developers will be able to see how their work will look whatever browser it is being viewed on.

However, this is not to say that Opera is lacking in features. It has support for XML, Cascading Style Sheets, versions 1 and 2, and is the only desktop browser at the moment able to view WAP pages. And there is support for 128-bit SSL encryption and TLS 1.0 for secure shopping and banking.

Installation is easy. Opera comes as a 1.8MB download, which is pretty skinny compared to the massive downloads for and Communicator. The self-extracting executable sets itself up and is able to find your connection, so when you first launch the browser, it will find your ISP



↑ You can customise virtually every aspect of Opera to behave exactly as you wish.

and dial it. You can of course change the homepage to a blank page to start surfing offline once you have set your own preferences.

Open up Opera for the first time and you will see a layout that will be familiar: a browser window showing Web pages, a bookmark list down one side, a bar full of command icons at the top and a progress monitor and space to enter your URL at the bottom. However, scan around and you will notice that Opera has equipped you with far more information than other browsers. There is a meter showing the speed of your connection and one to show the progress on certain items that you can specify in the extensive Preferences. All this information can be arranged either at the top or the bottom of the screen, or hidden from view.

You can open multiple windows within Opera and each window has a separate tab, so it is easy to swap between windows without having to have multiple instances of the browser open at once. Windows can be docked or floating.

Downloads are handled superbly, with plenty of information given, including an accurate estimate of the time the download will take, how many megabytes have been downloaded so far, how many more are to come, how much has been downloaded as a percentage and the source and destination of the file. You can handle multiple downloads at once, although obviously the actual speed of the downloads will depend very much on the speed of your connection.

The bookmarks section is easy to organise, with a huge variety of useful bookmarks already placed in a sensible folder structure by Opera. Adding in your own bookmarks is easy to do, and you can

← **Opera's bookmarks are quick, flexible and easy to use.** place them directly into relevant folders, rather than having to open a separate window to organise your bookmarks.

E-mail is built in to Opera and works efficiently enough. Of course, having your e-mail rolled into your browser does save you having two programs open at once. Unfortunately you can only import data directly from Eudora, so you cannot, for example, import your Outlook contacts book — a real downer if you have a bulging contacts book.

One very useful extra is the print preview window, which shows you exactly how your Web pages will look when printed out. Another is that you can navigate with keyboard shortcuts, which makes it both quick to use and also opens up a browser for disabled users.

When you exit Opera you can save the sites you were visiting and those windows that were open when you exited will be dialled up next time you open the browser. It even opens up the pages you were viewing in another package. For example, I was surfing using AOL and then swapped to Opera and it found the page I had been looking at using AOL.

Finally, you need to know that Opera is not free. It costs about £27, a small price to pay if you're a regular surfer who wants the best browser in town.

**Adele Dyer**

## PCPlus Verdict

### OPERA 4.01

✓ FOR	✗ AGAINST
→ Plenty of options on how to use it	→ Cannot import contacts from Outlook
→ Does not treat you like an idiot	→ Not free
→ Fast	

Specification .....	9
Quality .....	9
Performance .....	9
Value for money .....	7

**OVERALL .....** 9



← The m100 introduces style to the budget hand-held sector in the same way the Palm V did for the premium price one.

down for a second activates the backlight, and releasing the button turns the clock off. The flip up lid of the m100 has a tiny window through which the time can be seen, and a small access panel for the clock button. The idea is to provide a consumer friendly time-check. The lid, incidentally, flips right to the back of the m100 when not in use, or comes off completely if you'd prefer to use a soft case.

## Cost-cutting

Data sharing with a PC via Palm's built in HotSync software is at last possible without a cradle. A serial cable comes with the m100, and you can buy a USB one as an optional extra. Normally I'd remark that not including a USB cable is rather mean, but the retail price of this hand-held is so low that it would be churlish to even mention the point. So I won't!

Palm has clearly had to cut costs to manufacture a device with such a competitive retail price. It has done this in part by limiting the specifications. The already mentioned reduced screen size is one limitation. The 2MB of memory is another. 2MB is really very little, and with no expansion slot support, users may soon fill it with third party applications – especially bearing in mind that the target market may have a penchant for games and other fun stuff. More cost-cutting comes in the form of backtracking from an internal battery to the more old-fashioned disposable battery system (using two AAA batteries which Palm says should power the m100 for up to two months). I'm actually in favour of this particular step because, on a long trip for example, it's a lot easier to buy extra batteries than to recharge using a docking station. Overall, the m100 may be limited but it has all the core Palm functionality at an exceedingly nice price – a definite winner.

**Sandra Vogel**

## PCPlus Verdict

### PALM M100

<input checked="" type="checkbox"/> <b>FOR</b>	<input checked="" type="checkbox"/> <b>AGAINST</b>
→ Stylish	→ No expansion
→ Extremely affordable	→ Only 2MB RAM
→ Strong software suite	→ Serial rather than USB docking

Specification .....	9
Quality .....	8
Performance .....	8
Value for money .....	10
<b>OVERALL .....</b>	<b>9</b>

## HAND-HELD PC

# Palm m100

**PRICE** £130 **EX VAT** £110 **SUPPLIER** Palm  
**PHONE** 0207 365 9820 **WWW** www.palm.com/europe/uk

**Palm's latest hand-held is a low cost, low spec, stylish device, aimed at the fashion and price-conscious user**

**P**alm's latest hand-held is something of a departure for the company in some respects, more of the same in others. A new look, new naming convention, and some new software sit alongside the core Palm operating system and general design features that we already know well. Overall, it seems Palm is aiming at a cost conscious, fashion conscious market with the m100.

The unit itself is about the same size as the Palm V, though it has a more rounded design. The display is smaller, though. That of the Palm V is around 57mm square, while that of the m100 is 50mm square. The display is squeezed into a smaller space rather than being cropped, so applications that run on existing Palm devices should run fine on this one: the size difference is not really apparent unless you have the Palm V and m100 side by side. I had no difficulty using any of the built in tools, but some applications, particularly games, Web browsing and other graphics intensive tools, may prove more painful to use on the smaller screen.

Display size almost certainly won't be a factor for the target audience of the m100. What they'll particularly like is the ability to customise the look of the device. It comes with two

interchangeable faceplates, one black, the other blue. Further faceplates will be available in a range of colours – Palm describes those initially available as silver mist, blue mist, green mist and ruby pearl. They will retail at around £19 each. You can bet that if the device takes off, all manner of third party alternatives will come along. Swapping faceplates is very easy – they snap off and on readily.

## New features

The m100 software remains basically the same as that found on existing Palms, though there are some differences. Most notably, a new tool called Note Pad enables you to capture notes written directly on to the screen with the stylus. You can attach an alarm to a Note Pad entry but not, oddly, a Note Pad entry to an alarm created in the Clock tool. You can't attach a Note to an appointment, either, although you can attach a Memo written using Graffiti. Palm should have thought a little more laterally about this, particularly as Note Pad has taken over the application button on the front of the m100 that used to start the Memo Pad.

There is also a new Clock application. This is accessible any time the m100 is switched on by tapping a new on screen icon in the graffiti area. At other times, there is a button on the fascia that invokes the clock. Holding this button

### Specifications

2MB RAM,  
Monochrome LCD  
display, infra-red, Palm  
OS 3.5, powered by two  
AAA batteries quoted  
life up to two months

### Other information

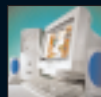
Palm OS 3.5 supplied  
with Address Book, Date  
Book, Click, To Do List,  
Memo Pad, Note Pad,  
Calculator, Graffiti  
handwriting recognition  
system. m100 comes  
with synch cable and  
desktop software

### Additional hardware

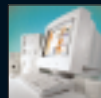
Docking station, £28,  
USB HotSync cable £34  
(£29 ex VAT), clip on  
coloured face plates £19  
each (£16 ex VAT)



**CONTENTS**



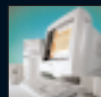
**Atlas Meridian  
A700D**  
42



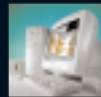
**Big Red Voyager  
700D**  
42



**Carrera Octan  
D650M**  
43



**Elonex WebRider**  
43



**Evesham Origin  
D700GFX**  
44



**Mesh Matrix  
Duron 700D**  
44



**Polar Picasso  
D650**  
46



**Simply Computers**  
46

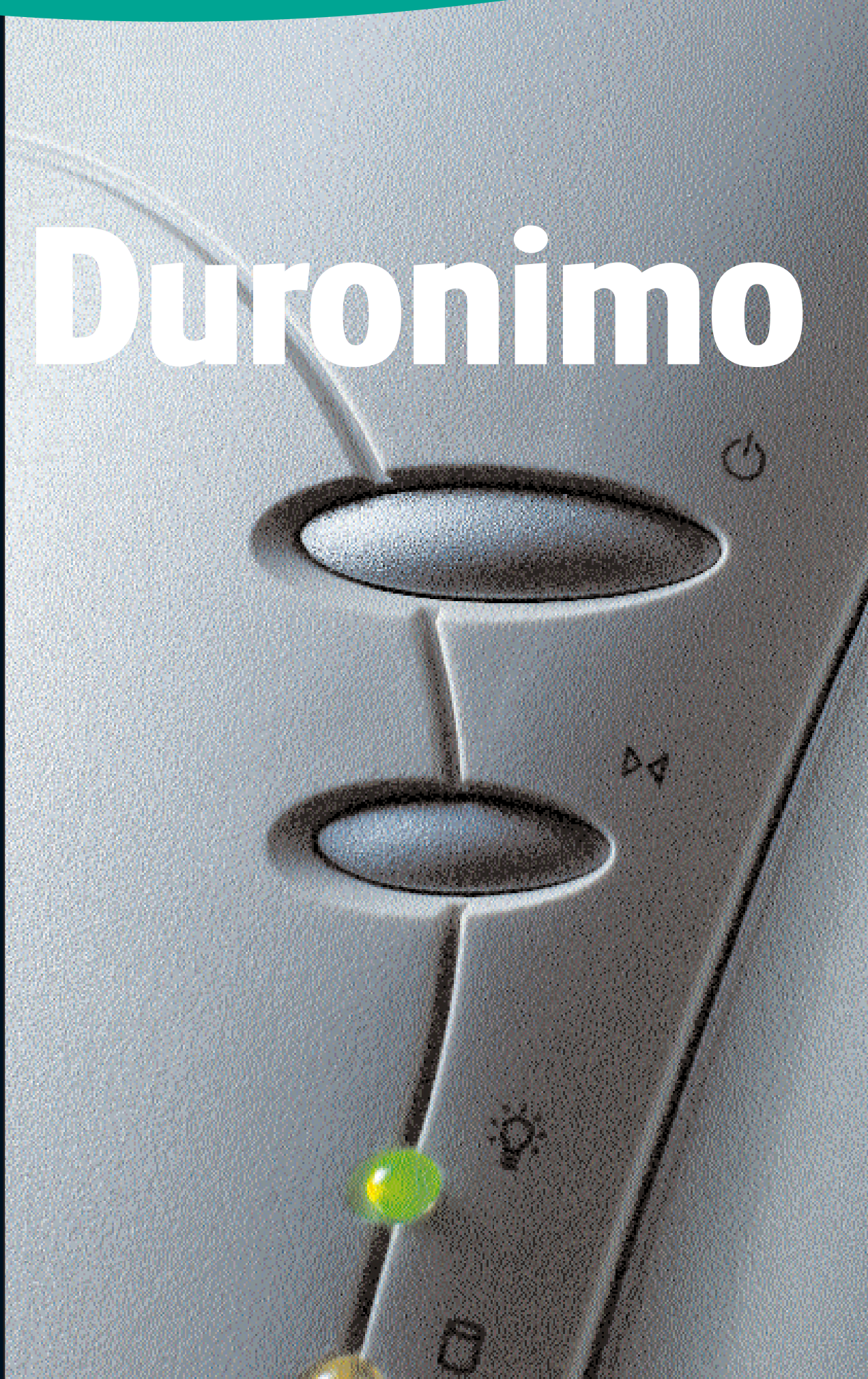


**Time 700D XLF  
Professional**  
50



**Titan Kudos**  
48

# Duronimo



AMD's Athlon has given Intel a good run for its money, but the Celeron has been largely unchallenged at the budget end. Until now. AMD's new Duron processor offers strong performance at low cost, as **Simon Williams** confirms from testing ten brand new Duron systems

**F**ew people can deny AMD its tremendous success with the Athlon processor. From being a small beast, apparently content to pick up the crumbs falling from Intel's table, it has gone within a year to being a healthy competitor to the processor mammoth.

The Athlon chip has a significant share (some reports put it as high as 35 per cent) of the desktop processor market, but AMD has little penetration in the budget market, where Intel's stripped down Celeron has had it pretty much its own way. That's about to change.

The introduction of the Duron, in its own new, inexpensive Socket A, promises to offer system builders a choice at the low end of the market as well as the medium to high end. The Duron, based on the same core as the Athlon, is still a different design and has less cache memory than its bigger

sibling. There's just 64K of Level 2 cache, half the 128K of Level 1 cache, which is unusual in itself.

Those who remember the introduction of the Celeron will know that a Level 2 cache can make the difference between a hot processor and one that barks and lives in a kennel. AMD has avoided this pitfall by the simple trick (in concept, if not in execution) of running the caches at the same speed as the processor. So, a 700MHz Duron (the chip is currently available in 600, 650 and 700MHz versions) has L1 and L2 caches running at 700MHz, all on the same silicon die as the chip itself.

Here are ten PCs using the Duron to give a strong performance, while leaving system builders sufficient cash in hand to put a lot of extras into the specification. I set a price point of £1,000 all in for this group, to give suppliers enough cash to build some exciting systems.

## → Duron vs Celeron

The Duron is aimed squarely at Intel's market for the Celeron – budget and mid-range systems where price is at least as important as outright performance. Duron's are intended to undercut Celerons on price, while offering improved performance, clock rate for clock rate.

Comparing the performance of the two chips shows a difference in application performance of around 10 per cent. The 633MHz Celeron in the Elonex WebRider in September's edition, produced a **PC Plus** Index of 1.12, while the 650MHz Duron in this month's Polar machine scored 1.24. Graphics performance, as I've said so many times before, depends much more on the graphics adaptor fitted to the system, than on its core processor.

Okay, the Celeron in this comparison is clocked 17MHz slower than the Duron, but this represents a difference of under three per cent. It doesn't account for the difference in performance.

In cost terms, there's little to choose between the two chips. Several system board suppliers have now produced boards which support the Duron and like their equivalent Intel-processor boards which run Celerons and Pentium IIIs, most of the AMD-based boards take Athlons and Durons. VIA and AMD make support chipsets for the new processor and VIA's includes integral sound for manufacturers who want to cut costs still further.



## Atlas Meridian A700D

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Atlas  
**PHONE** 07000 285275 **ONLINE** [www.atlas.co.uk](http://www.atlas.co.uk)

**Atlas' Meridian A700D builds on the qualities of its 650MHz sibling, including twin CD/DVD drives**

### What you get

Atlas provided a 650MHz Duron machine for my first standalone Duron review last month and this midi-tower Meridian A700D is heavily based on that system – no bad thing – but with a processor upgrade to 700MHz.

For a start, there are the twin DVD and CD-RW drives, providing good coverage of the kind of playback and recording tasks most people will need. A standard floppy completes the line up on the front panel, but there's a 19GB Fujitsu hard drive inside for permanent storage.

The 700MHz Duron sits in a Gigabyte MicroATX system board with 128MB of memory, but has only limited expansion possibilities. There are just two available PCI expansion slots, though sound and modem are provided.

Graphics come from a Riva TNT2-based adaptor and run to a fine 17-inch CTX monitor. The adaptor could do with a bit more kick, but the monitor is excellent.

### In use

The 650MHz version of this machine performed nearly as well on the SYSmark benchmark last month as several of the 700MHz PCs. The 700MHz Meridian produced a **PC Plus** Index of 140, a whisker faster than the Mesh Matrox, but still the fastest in the group.

The 3DMark results weren't as impressive, as the Riva TNT2 card isn't as quick as nVidia's latest GeForce and GeForce 2 chips. The Video 2000 test produced a good

result, so this would be a strong machine for 2D work, such as DVD playback.



### Service and support

Atlas provides a minimum one year, back to base cover on the system, which is a bit on the meagre side. Extended warranties and on-site cover are available as optional extras, of course, but that all costs more.

### Conclusion

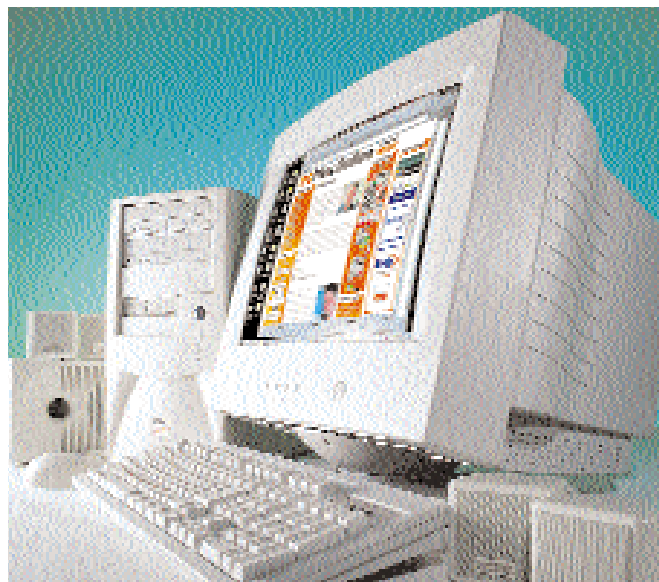
This is a quick machine for general purpose applications and is passable on games, too. It has a good specification, including an excellent monitor and a worthwhile software bundle. It may not be as expandable as some systems, but is well worth considering if you're looking for a PC based around AMD's new chip.

### PC Plus Verdict

#### ATLAS MERIDIAN A700D

<b>✓ FOR</b>	<b>✗ AGAINST</b>
→ Twin DVD/CD-RW drives	→ Riva TNT2 graphics card below par
→ Excellent flatface monitor	→ Limited expansion potential

<b>Specifications</b> .....	<b>8</b>
<b>Quality</b> .....	<b>8</b>
<b>Value</b> .....	<b>8</b>
<b>Performance</b> .....	<b>9</b>
<b>OVERALL</b> .....	<b>8</b>



## Big Red Voyager 700D

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Big Red  
**PHONE** 08700 711 117 **ONLINE** [www.bigred.co.uk](http://www.bigred.co.uk)

**Big Red fits twin CD/DVD drives and a TV/FM tuner to its system, which is a good start**

### What you get

Big Red uses a small midi tower case, but fits twin DVD/CD drives, with a Waitec CD-RW and a Samsung DVD. This gives you plenty of options for playback and back-up, though the Waitec drive failed to copy a sample CD. Inside, the 700MHz Duron is supported by 128MB of memory and a 19GB Fujitsu hard drive.

Red Box included a combination TV and FM radio tuner card in its system, which provides a useful extra, though you'll need aerials.

The supplied graphics adaptor is a Voodoo3 3000. This has just 16MB of memory, but is more than adequate, once you realise that it supports a maximum 3D colour depth of 16-bit, which takes a lot less video memory.

The 17-inch Lite-On monitor gives a good picture and is easy to set-up and view.

Neither problem was general in this group, so it looks as if Red Box still has some work to do on the set-up.



### Service and support

Big Red offers what it refers to as lifetime support. This breaks down into a year's back to base cover on parts and labour, followed by back to base labour only for the rest of the lifetime of the system.

### Conclusion

Big Red has tried hard to offer a bit extra in its Voyager 700D machine, but needs to work on the build a bit more. This was an early example of a Duron from the company, so you could well find these teething problems have been fixed by the time you contact them.

### In use

Some configuration difficulties showed up when I tested the Voyager 700D. SYSmark returned a **PC Plus** Index of 130, which was a little slower than others using the 700MHz Duron and the 3DMark test would only run at low resolution. Despite repeated attempts to run it at 1,024 x 768, the system froze during the second game segment each time.

I would have put this down to the test itself, except that the Video 2000 benchmark also froze each time it came to the interlace test.

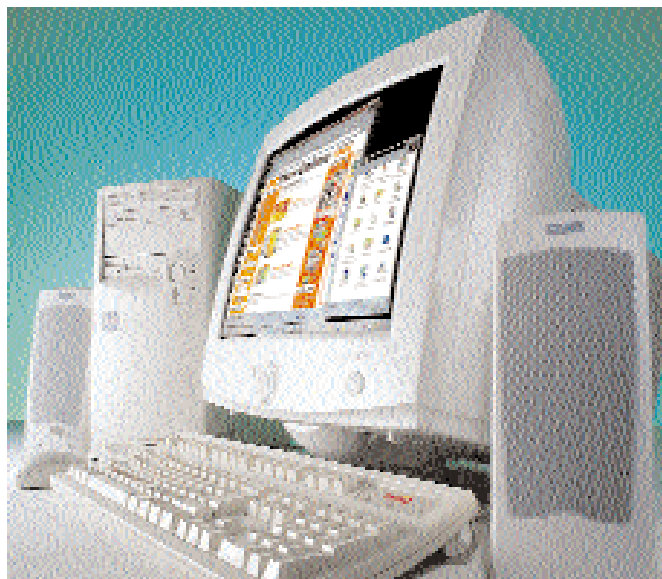
### PC Plus Verdict

#### BIG RED VOYAGER 700D

<b>✓ FOR</b>	<b>✗ AGAINST</b>
→ Twin DVD/CD-RW drives	→ Unable to complete 3DMark high-resolution or Video 2000 tests
→ TV/FM tuner card	

<b>Specifications</b> .....	<b>9</b>
<b>Quality</b> .....	<b>7</b>
<b>Value</b> .....	<b>8</b>
<b>Performance</b> .....	<b>7</b>
<b>OVERALL</b> .....	<b>7</b>





## Carrera Octan D650M

**PRICE** £998 **EX VAT** £849 **SUPPLIER** Carrera  
**PHONE** 0208 307 2800 **ONLINE** [www.carrera.co.uk](http://www.carrera.co.uk)

**Carrera's Octan D650M has restricted upgrade potential. Its 650MHz processor doesn't cut it**

### What you get

Carrera's machine uses a neat mini-tower case, so it should fit virtually anywhere, but has limited upgradability because of the MicroATX system board inside. There's a DVD/CD-RW combo drive in the top of just three drive bays in the front of the case, with a standard floppy in the bottom one.

The Duron processor runs at 650MHz, where most suppliers are fitting 700MHz devices, but it comes with 128MB of memory like all the others. The 14.2GB hard drive is smaller than most of the leaders' in this group and there are only two PCI expansion slots, though both are free. Graphics support is provided by an nVidia NV11 card with 32MB and runs into a 17-inch LG Studioworks monitor.

### In use

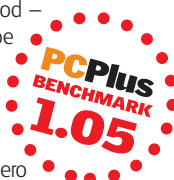
Results weren't as good as the 700MHz machines, as you would expect, but were also low for the 650MHz processor fitted here. The SYSmark 2000 score was marginally faster than a 600MHz Celeron, producing a **PC Plus** Index of 1.05.

Despite four attempts, the machine failed to complete the 3DMark benchmark at 1,024 x 768 pixels, dropping out to the Windows desktop in each case.

The LG monitor was another with a noticeable shadow-mask, making small text look fuzzy. Although they're more expensive, monitors using Sony's Trinitron technology don't have this problem at all.

Carrera's keyboard and mouse

combination is good – comfortable to type on and easy on the wrists. Software includes SmartSuite Millennium and Nero for burning CDs.



### Service and support

Carrera provides a two year, on-site warranty with a two working day call out. This is quite a while, though potentially not as long as Mesh's. It does last for a full two years, though, which is when most problems occur with PCs.

### Conclusion

Carrera isn't offering the same kind of value as several of its competitors. It has a slower processor and is less expandable than the Time, Mesh or Evesham machines, for example. While it's quite adequate in itself, there's nothing to make it stand out from the crowd.

### PC Plus Verdict

#### CARRERA OCTAN D650M

✓ FOR	✗ AGAINST
→ Good keyboard and mouse	→ Poor benchmark results
→ Better than average warranty	→ Small hard drive
	→ Shadow-mask on LG monitor

Specifications .....	7
Quality .....	8
Value .....	7
Performance .....	6
<b>OVERALL .....</b>	<b>7</b>



## Elonex WebRider

**PRICE** £1,052 **EX VAT** £895 **SUPPLIER** Elonex  
**PHONE** 08000 37465 **ONLINE** [www.elonex.co.uk](http://www.elonex.co.uk)

**Elonex's machine would have done a lot better in a group test of Athlon-based PCs**

### What you get

Okay boys, which part of the phrase 'a £1,000 PC for our Duron group test' don't you understand? Elonex provided a 750MHz Athlon system for this group, but we included here for comparison. This is what you can get in the middleweight processor arena for around £1,000.

The mini-tower case, a feature of the many WebRiders Elonex makes, has two of its three drive bays filled with a fast, 16-speed Acer DVD drive and a standard floppy. Inside, the Athlon is supported by 128MB of memory and a substantial 25.4GB hard drive. This is a good basic core and is neatly matched by a 3D Prophet graphics adaptor and one of Elonex's own 17-inch monitors. Audio is provided by the VIA chipset and runs to a trio of PC Works speakers from Creative.

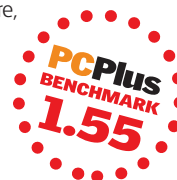
### In use

As you might expect, performance of the WebRider was the best in the group, but since Elonex didn't play to the rules, I can't offer it an award.

The **PC Plus** Index of 1.55 is about right for a 750MHz Athlon, though interestingly the 3DMark benchmark gave results that were bettered by the Evesham, Simply and Time systems, showing how important the graphics adaptor now is in games PC configuration. The 3D Prophet may be a fast card, but it can be bettered.

The 17-inch Elonex monitor

gives a fair picture, though not as clear as any of the truly flat-faced devices. Controls were simple enough though.



### Service and support

Elonex provides a one year, on-site warranty with the WebRider and claims the turnout will normally be next working day. This is a good response, so if you like it, you can always extend the cover after the first year.

### Conclusion

The WebRider is a fair system, supplied with Works 2000 but lacking any removable storage other than a floppy drive. It gives good performance, but since it's based around an Athlon, this is hardly surprising.

### PC Plus Verdict

#### ELONEX WEBRIDER

✓ FOR	✗ AGAINST
→ 750MHz Athlon processor	→ 750MHz Athlon processor (not what we asked for)
→ Generous hard drive capacity	

Specifications .....	6
Quality .....	8
Value .....	8
Performance .....	10
<b>OVERALL .....</b>	<b>7</b>



## Evesham.com Origin D700GFX

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Evesham.com  
**CONTACT** 08000 380800 **ONLINE** www.evesham.com

**Evesham's Origin is a fast, well-built system, but could do with a CD-RW to accompany its DVD drive**

### What you get

Evesham's Origin D700GFX is quite similar in its specification to Mesh's Matrix. It's based in a midi-tower case, so has room for expansion, and uses a 700MHz Duron at its core. There's a single DVD drive and a floppy on the front panel and a 19GB hard drive for permanent storage, though here it's a Maxtor device, rather than an IBM, and runs with a DMA 66 controller, rather than Mesh's DMA100.

Card expansion is more restricted on the Microstar system board – the same model as Time uses – but the graphics card, based on a GeForce 2MX graphics chip, has more wellie than the GeForce 256 in the Matrix. Both systems drive above average Taxan ValueVision 17-inch monitors.

### In use

The SYSmark results from the Evesham system were among the highest in the group. The **PC Plus** Index at 1.35 was within a short head of the Time machine and the 3DMark results for the low resolution run were the highest in the group. Video 2000 also produced good 2D figures.

The keyboard and mouse are a fair combination and make the machine comfortable to use and the screen display was reasonable. This was the first machine we've seen supplied with Windows ME, which improved start up and shut down times.

### Service and support

Evesham provides a two year, on-site warranty with the Origin D700GFX. Call out is next working day and Evesham uses its own engineers, which is always preferable to third parties who have to be separately trained. Unlimited telephone support is also provided, as it is with all the machines in this group.

### Conclusion

This is a fair machine, though it looks a little under spec in comparison with those offering twin or combo DVD/CD-RW drives. It showed good performance and was one of only three machines to include a GeForce 2-based graphics card at this price point. It should join your short-list in any possible buy.

### PCPlus Verdict

#### EVESHAM.COM ORIGIN D700GFX

✓ FOR	✗ AGAINST
→ Windows ME/GeForce 2 MX graphics card	→ Limited expansion on MicroATX system board
→ Two year, on-site warranty	

<b>Specifications</b> .....	<b>7</b>
<b>Quality</b> .....	<b>8</b>
<b>Value</b> .....	<b>8</b>
<b>Performance</b> .....	<b>9</b>
<b>OVERALL</b> .....	<b>8</b>



## Mesh Matrix Duron 700D

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Mesh  
**PHONE** 0208 208 4705 **ONLINE** www.meshplc.co.uk

**Mesh's Matrix Duron 700D is a soundly configured system with good performance and a fast hard drive**

### What you get

Mesh builds its Matrix Duron 700D into a substantial midi tower case with three 5.25-inch drive bays, but only one filled here, with a Pioneer DVD drive. Inside, a 700MHz Duron processor is supported by 128MB of memory, which is becoming the new standard at this price point. The 19GB IBM hard drive is driven by an Ultra DMA 100 controller on the Asus system board. This should give extra data transfer performance.

There are five PCI expansion slots, but two are taken up by a SoundBlaster Live! card, which drives a ubiquitous set of PC Works speakers, and a V90 modem. Unusually, the machine includes five USB sockets – no need for a hub. Graphics are provided by a 32MB 3D Prophet SE card, based on the GeForce256 chip from nVIDIA. The monitor is a 17-inch ValueVision unit from Taxan, which gives a clear, well rendered picture on a near-flat tube face.

### In use

The Matrix Duron tested well, with a high SYSmark 2000 result giving a **PC Plus** Index of 1.39. The 3DMark results were also good, with indexes well over 3,000 at both resolutions. Video 2000 presented no real problems to the system, either, with an index approaching 2,500.

The system is easy to use, with a Microsoft Internet keyboard and Intellimouse combination. Works Suite 2000 comes pre-installed, as does SoftDVD for DVD-movie playback. It's a shame there's no

form of medium capacity removable storage, such as a Zip, Superdisk or CD-RW drive included.

### Service and support

Mesh provides a two-stage warranty with this machine. The first year is on-site with a typical three to five day call-out which is longer than most. Outside the home counties, warranty calls are sub-contracted. Second and third year cover is back to base, but does cover parts as well as labour.

### Conclusion

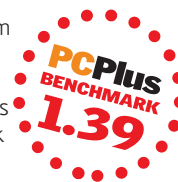
Mesh's Matrix Duron 700D is a good, solid system with useful extensions, such as the Ultra DMA 100 hard drive and quality 17-inch monitor. It has strong performance and a good software bundle. Definitely one for the short-list.

### PCPlus Verdict

#### MESH MATRIX DURON 700D

✓ FOR	✗ AGAINST
→ Ultra ATA 100 hard drive	→ DVD drive only
→ Five USB sockets	→ Peculiar warranty
→ Good Taxan monitor	

<b>Specifications</b> .....	<b>9</b>
<b>Quality</b> .....	<b>8</b>
<b>Value</b> .....	<b>8</b>
<b>Performance</b> .....	<b>10</b>
<b>OVERALL</b> .....	<b>9</b>







## Polar Picasso D650

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Polar  
**PHONE** 0800 138 1238 **ONLINE** [www.polar.co.uk](http://www.polar.co.uk)

**Polar's Picasso D650 has an excellent graphics card and monitor, but little else to match this**

### What you get

Polar uses a midi-tower case on its Picasso D650 system. This has a 10-speed DVD drive in the top bay, but no recordable device, other than a standard floppy. The machine runs a 650MHz Duron, again with 128MB of main memory. The Gigabyte system board can take up to 1.5GB, assuming you can find 512MB DIMMs.

Expansion is limited, with no ISA slots on the MicroATX system board, but all three PCI slots are free. Sound and a 56K modem are provided from the main board and the sound from the VIA chipset is fed to a better than average pair of Labtec speakers.

Highlight of the system is the Hercules 3D Prophet II graphics adaptor and the 19-inch Hansol monitor. This gives a clear, well-defined picture and the extra size of the screen is welcome.

### In use

As with the Big Red and Carrera machines, there was trouble getting the Polar to complete all the benchmarks. It ran the SYSmark test to the end without problem, coming in with a **PC Plus** Index of 1.24, better than Carrera's result. However, 3DMark repeatedly froze during runs at both resolutions and I was unable to obtain results.

The Video 2000 benchmark ran straight through, producing a good index. The machine has no particular foibles and using it is straightforward. Keyboard and mouse are both from Digital and

neither is particularly comfortable in long-term use.

### Service and support

Polar's warranty is all back to base, but it does last for three years and include parts as well as labour for the full term. A back to base warranty can prove quicker than some on-site cover, particularly as there should be little waiting for parts.

### Conclusion

Polar's strength is in its graphics card and 19-inch monitor, though with the problems I had under test, some attention to the configuration is needed. The performance was held back by the 650MHz processor and the specification included no intermediate or high capacity removable media. A fair system, but not outstanding in this company.

### PCPlus Verdict

#### POLAR PICASSO D650

✓ FOR	✗ AGAINST
→ 3D Prophet II graphics card	→ 650MHz processor
→ 19-inch monitor	→ DVD drive only
→ 3 year part and labour warranty	

Specifications .....	7
Quality .....	7
Value .....	7
Performance .....	7
<b>OVERALL .....</b>	<b>7</b>



## Simply Computers Systemax D700RV Home Office

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Simply  
**PHONE** 08707 297644 **ONLINE** [www.simply.co.uk](http://www.simply.co.uk)

**Simply's Systemax D700RV Home Office has good value written right through it**

### What you get

Simply Computers has done well with its Systemax D700RV Home Office. Although the drive at the top of the stack is a straight DVD, there's a 100MB Zip drive below this and above the standard floppy drive.

Simply's 700MHz Duron processor is coupled to 128MB of memory, giving it plenty of breathing space, and to a 19GB ATA66 Maxtor hard drive. There's a bit more expansion room on this Abit system board and the graphics side is good, too, with a 3D Power card, based on a GeForce 2 MX graphics processor with 32MB of memory. The keyboard is only average, but the Logitech Pilot Plus mouse is nearly as good as an MS Intellimouse.

Although not requested, Simply included an Epson Stylus Color 480 ink-jet with its machine. Although an entry-level printer, it gives good quality print, with dense black and strong colours. It's a useful extra.

### In use

One thing you notice on the Systemax monitor is the flat-face of its screen. This 17-inch CTX display is excellent, with no visible distortion, even right into the corners.

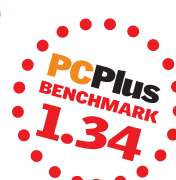
Performance tests produced good results, starting with a **PC Plus** Index of 1.34 and including 3DMark indexes of nearly 4,000. The Video 2000 index was also well up the field, giving the Systemax a very good score overall.

### Service and support

Like Polar, Simply offers a three year, back to base warranty. Unlike Polar's, though, only the first year of this includes the cost of parts as well as the labour. As with most back to base warranties, you have to pay to send the machine back.

### Conclusion

Simply Computers has balanced the specification for features and performance. The quality monitor and fast graphics chip stand this machine in good stead, even without an ink-jet printer. Having both is very good value – the only thing missing is any form of application software.



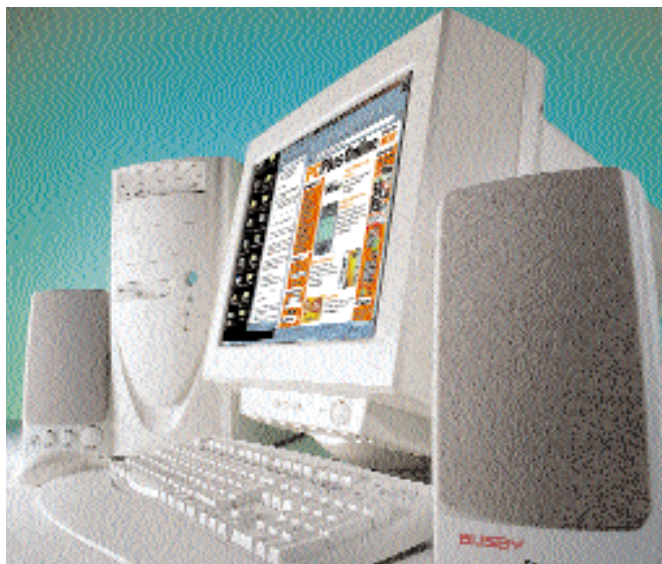
### PCPlus Verdict

#### SIMPLY COMPUTERS SYSTEMAX D700RV

✓ FOR	✗ AGAINST
→ Good performance	→ No application software
→ Zip drive	
→ Epson Stylus Color 480 printer	

Specifications .....	9
Quality .....	8
Value .....	10
Performance .....	9
<b>OVERALL .....</b>	<b>9</b>





## Titan Kudos

**PRICE** £999 **EX VAT** £850 **SUPPLIER** Titan  
**PHONE** 0870 442 1248 **ONLINE** [www.titanplc.co.uk](http://www.titanplc.co.uk)

**Titan deserves some kudos for its Kudos PC. It has a good component mix and a fair performance**

### What you get

Titan's Kudos machine builds on a 700MHz Duron to good effect. The midi tower case includes a 10-speed Hitachi DVD drive and a floppy below this. Inside is a 14.2GB hard drive, a bit on the low-capacity side, but another 700MHz Duron with 128MB of main memory.

The Gigabyte system board has more room for expansion than several here, with two ISA slots, both free, and five PCI ones. Two are taken up by a V90 modem and a SoundBlaster PCI 128 sound card, running to a pair of Busby speakers.

Alone among the suppliers here, the graphics adaptor is a Matrox Millennium G400: this doesn't have the performance of any of the nVidia-based cards, though it does run into an excellent VisionMaster Pro 410 monitor from Iiyama.

### In use

Titan's machine produced very good SYSmark results, giving a **PC Plus** Index of 1.37. This is right up among the leaders, but the performance was carried through to the 3DMark test, where the G400 held the system back. The Video 2000 test froze part-way through on each run.

The machine uses a Digital Edge keyboard, not one we've come across before, but including an extra row of dedicated function keys for multimedia. The Intellimouse it comes with is one of the genetically modified species, using the Intellieye, ball-less technology.

### Service and support

Titan offers a five year, back to base warranty with the Kudos. The first year includes parts and labour costs, while the remaining four cover just the labour of the repair. Non-parts cover like this is still worth having, particularly when service technicians can charge up to £20 an hour (and worth every penny, I might add).

### Conclusion

Titan has done a good job on this system, which offers fair performance and generally a good mix of components. The choice of the Matrox graphics card isn't ideal when competing against the machines in this group, as it doesn't have the performance to go up against GeForces of any variety. Even so, this is another machine for your short-list.

## PCPlus Verdict

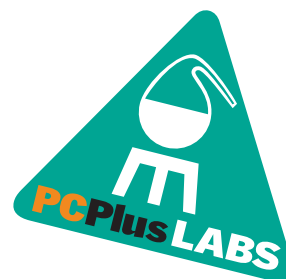
### TITAN KUDOS

✓ FOR	✗ AGAINST
→ Excellent monitor	→ Matrox G400 card not top performer
→ Good application performance	→ No CD-RW or Zip mouse

<b>Specifications</b> .....	<b>8</b>
<b>Quality</b> .....	<b>8</b>
<b>Value</b> .....	<b>8</b>
<b>Performance</b> .....	<b>8</b>
<b>OVERALL</b> .....	<b>8</b>

## → Plain English glossary

**Confused by the jargon? Help is at hand...**



### AGP SLOT

An internal slot in your computer that provides a faster path for data. Graphics cards using an AGP slot will usually perform better than similar cards in PCI slots.

### CD-RW DRIVE

A drive that is able to read CDs and write information to CD-Rs (CDs that can be written to once only) and CD-RWs (CDs that can be reused like a floppy disc).

### CHIPSET

A chipset provides the basic or core functionality of a device. They can be found in sound cards, graphics cards and just about every other piece of computer hardware.

### DVD DRIVE

A DVD drive is able to read the latest high-capacity DVD discs, as well as CDs. With appropriate decoder software or hardware, you can watch DVD movies on your PC.

### GB OR GIGABYTE

A measure of a storage area (or memory) within the PC. One GB is equivalent to 1000MB.

### HARD DISK OR DRIVE

A device inside your computer where you store all the information you want to keep permanently, even when the machine is switched off.

### INK-JET

A type of printer that squirts a tiny jet of ink on to the printer. They are particularly well suited to home and small office applications.

### ISA SLOTS

An old method of adding internal cards with extra features to your PC. Many new computers have no ISA slots.

### MB OR MEGABYTE

A measure of a storage area (or memory) within the PC. Equivalent to 1000 bytes, a basic unit of storage.

### MHZ

This measures the speed of a PC.

### MODEM

The device that connects your PC to the Internet. Most new computers come with them as standard. Make sure yours is V90 compliant.

### MOTHERBOARD

See system board.

### PCI SLOTS

These allow you to plug in expansion boards with extra features inside your PC. Typically, modern sound cards and modems are fitted to PCI slots.

### PROCESSOR

The engine at the heart of your PC. Speed is measured in MHz – the faster the better.

### RESOLUTION

Basically, this reflects the amount of information you can see on your screen. The higher the resolution, the more you can see, by making everything smaller.

### SUPERDISK DRIVE

Reads and writes information to special 100MB discs. Can also read and write to normal floppy discs.

### SYSTEM BOARD

The panel inside your PC, into which everything else is plugged, including power, processor, memory and graphics card.

### ULTRA DMA 66 AND 100

An agreed standard, used to link the hard drive to the computer. Ultra DMA 100 – the fastest available today.

### USB

Short for Universal Serial Bus, it is an easy-to-use standard for connection peripherals, such as printers and scanners, to your computer.

### V90

This is simply the fastest agreed standard for modems over a normal telephone line. If you buy a modem, make sure it is V90 compliant.

### ZIP DRIVE

Imega's Zip drive has been around for donkey's years. It can read and write information to special discs and is available in 100MB and 250MB versions.

## What you get

Built into one of Time's novel, curve-fronted desktop cases, the 700D XL Professional looks extremely suave. The design is facilitated by reorganising the machine inside and putting the drives and power supply at the bottom, with the system board on the other side of the case from normal. As well as the floppy drive, there are two other removable media devices, a letter-box style Pioneer DVD and a Samsung CD-RW below this. Inside, a whacking 27.5GB hard drive provides a permanent home for Time's stack of software.

As the model name suggests, the processor is another 700MHz Duron and like all others in this review, is fitted with 128MB of memory. The Microstar system board uses a VIA chipset, though it's a MicroATX design, offering limited expansion. There are no ISA slots and one of only three PCI ones is taken too, by a V90 modem.

Sound comes from a SoundBlaster 128 chip on the system board and runs through a pair of Time's own brand speakers, which are surprisingly good, up to the standard of the ACS22s supplied by Carrera.

Time uses a 3D Prophet DDR graphics card with 32MB of memory and runs it to a 17-inch monitor, more of which later.

The keyboard is a Key Tronics unit which has a comfortable feel and is resilient and long lasting – I've used them for years. It's partnered by a Microsoft Intellimouse, with a green central wheel matching highlights on the rest of the kit.

Time provides a joystick and a gamepad with the system, which are all useful extras. Neither of them are particularly good examples of their type, but all are serviceable.

## In use

Test results for the 700D XL Professional were good, among the best in the group. The SYSmark 2000 benchmark returned a **PC Plus** Index of 1.36, well up with the fastest. 3DMark 2000 showed the advantages of having DDR memory on your graphics card, coming up with indexes of over 4,000 at both resolutions. Video 2,000 also scored well – this isn't a machine you'll be hanging around for under normal circumstances.

The only below average aspect of the machine is its 17-inch



# Time 700D XLf Professional

**PRICE** £998 **EX VAT** £849 **SUPPLIER** Time **PHONE** 01282 777555 **ONLINE** [www.timecomputer.co.uk](http://www.timecomputer.co.uk)

**Time's 700D XL Professional has an excellent specification and runs fast and without problem. Check the monitor, though**

monitor. Labelled as Time's own 17s device, it's actually made by Samsung and doesn't give that good a picture. While the tube face is reasonably flat, the shadow-mask is obtrusive, which has the effect of obscuring detail. Text on even a 1,024 x 768 Windows desktop is hard to read in places and a 17-inch monitor is capable of higher resolutions than this.

There's plenty to use this machine on, as it's supplied with a variant of Microsoft's Works Suite 2000, as well as SmartSuite Millennium and a host of over 45 other titles. While there's a leaning towards educational software – a lot of language tuition – it's generally a good mix and there are even a couple of worthwhile games in there.

Adobe's Easy CD Creator does what it says and makes back-up and creation of CDs and CD-RWs very straightforward.

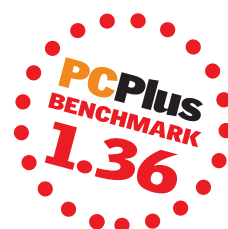
## Service and support

All the value in the system implies a cut somewhere and Time's warranty is a basic one year, back to base. This includes parts and labour, but is a bit meagre compared with some of the others.

## Conclusion

Time continues to produce systems which appear better value than most others around. This isn't at the expense of performance, either, as the 700D XLf Professional is one of the fastest machine in the group.

Highlights of the system are its twin CD drives, massive hard drive, sack loads of software and funky design. Against this is a less than perfect monitor screen. I urge you to see the 17s monitor running in one of Time's showrooms before committing yourself. You may find the picture perfectly adequate, in which case better value will be hard to find.



## PCPlus Verdict

### TIME 700D XLf PROFESSIONAL

<b>✓ FOR</b>	<b>✗ AGAINST</b>
→ Twin DVD/CD drives	→ Subjectively, poor monitor display
→ Software	
→ Innovative design	

<b>Specifications</b> .....	<b>10</b>
<b>Quality</b> .....	<b>9</b>
<b>Value</b> .....	<b>10</b>
<b>Performance</b> .....	<b>9</b>
<b>OVERALL</b> .....	<b>10</b>

## The Time's best features

The specs were so good at the price we had to double-check them. This is what you get:



**1 SOFTWARE**  
Time is rightly renowned for its software bundles. Here, it includes both the Standard and Executive bundles, as well as a copy of Microsoft's Works 2000. There are nearly 50 applications here, on many CDs, and although not all are cutting edge, there's truly something for everyone.

**2 TWIN CD/DVDS**  
As I've mentioned many times, having twin CD and DVD drives as your removable storage makes a lot more sense than having a single device. With these two, you can play CDs, DVDs, CD-Rs and CD-RWs and write to the last two, as well. They work well together with the supplied CD-writing software.

**3 PROCESSOR**  
The 750MHz is the fastest current Duron chip available, and Time has matched it well with memory and hard drive. This is a good solid basis on which to build a fast, general-purpose PC. The cool-running and largely trouble-free Duron is a good younger partner to AMD's Athlon.

**4 VIDEO ADAPTOR**  
nVidia has by far the lion's share of graphics chips in this group and Time uses a GeForce DDR on its 32MB card. Although not quite as fast as a GeForce 2, it still has enough performance to produce very respectable performance figures.



# → Which Duron PC?

Check the specs here...



## CONTACTS

	Meridian A700D	Voyager 700D	Octan D650M	WebRider
Supplier	Atlas	Big Red	Carrera	Elonex
Supplier type	Direct	Direct	Direct	Direct
Telephone number	07000 285275	08700 711117	020 8307 2800	08000 374465
Price	£999 (£850 ex VAT)	£999 (£850 ex VAT)	£998 (£849 ex VAT)	£1,052 (£895 ex VAT)
Warranty	1 year back to base	1 year back to base plus lifetime labour	2 years on-site	1 year on-site
Delivery charge	£34	£24	£34	£18
Credit card surcharge	None	None	None	None

## SPECIFICATIONS

Proc. type – Speed (MHz)	Duron – 700	Duron – 700	Duron – 650	Athlon – 750
System board	Gigabyte GA-7ZM	Microstar K7Z Pro	Abit M7VKA	Microstar 6340
Chipset	VIA KT133/686A	VIA KT133/686A	VIA KT133/686A	VIA KT133/686A
Memory bus speed (MHz)	100	100	133	133
Available memory (MB)	128	128	128	128
Maximum memory (MB)	1.5GB	1.5GB	1.5GB	1GB
Secondary cache (K)	64	64	64	64
Hard drive capacity (GB)	19.0	19.0	14.2	25.4
Hard drive make	Fujitsu	Fujitsu	Samsung	Fujitsu
CD-ROM make – speed	Panasonic – DVD 10x	Samsung – DVD 8x	Ricoh – DVD 8x/CD-RW	Acer – DVD 16x
Other drives and devices	TEAC CD-RW, floppy, V90 modem	Waitec CD-RW, floppy, V90 modem, TV/FM tuner	Floppy, 56K modem	Floppy, 56K modem

## EXPANDABILITY

ISA Expansion slots – free	0	0	0	0
PCI Exp slots – free, AGP	3 – 2, 1	6 – 3, 1	2 – 2, 1	3 – 3, 1
Serial ports	2 x 9, 2 x USB	2 x 9, 2 x USB	2 x 9, 2 x USB	2 x 9, 2 x USB
Parallel	1	1	1	1

## GRAPHICS SYSTEM

Monitor	CTX PR705	Lite-On B1770NSL	LG Studioworks 775c	Elonex MN017COM
quoted diagonal (in)	17	17	17	17
measured diagonal (in)	16.00	15.75	16.00	16.00
dot pitch (mm)	0.24	0.27	0.27	0.27
Video adaptor	nVidia Riva TNT2	Voodoo3 3000	nVidia NV11	3D Prophet
video memory (MB)	32	16	32	32

## SOUND

Sound card	VIA PCI Audio	SB Live! 1024	VIA PCI Audio	VIA PCI Audio
Speakers	TEAC Powermax 80/2	Creative PC Works	Altec Lansing ACS22	Creative PC Works (3 speakers)

## EXTRAS

Make of mouse	Logitech Pilot Plus	Ideal	MS Intellimouse	MS Intellimouse
Operating system	Windows 98 SE	Windows 98 SE	Windows 98 SE	Windows 98 SE
Bundled software	SmartSuite Millennium, Nero 5, DVD/CD-RW/	TV/FM tuner/ DVD/CD-RW/ modem/sound utils	SmartSuite , Millennium DVD/CD-RW/	MS Works 2000, DVD/modem/sound utils
BIOS make	AMI	Award	Award	Award
Power – Suspend (W)	166 – 53	154 – 70	156 – 79	166 – 60
Faults as supplied	None	3DMark/Video 2000 wouldn't complete	System errors during SYSmark	Wrong processor!

## VERDICT

8

7

7

7



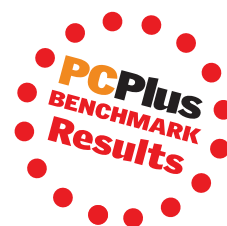
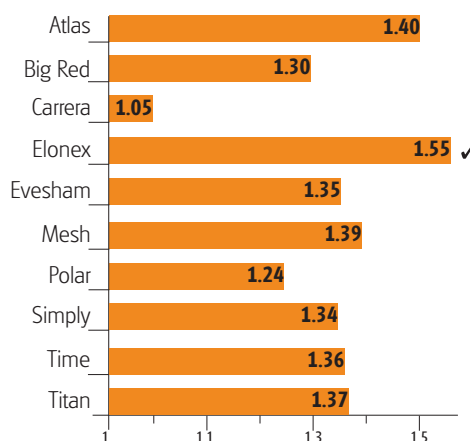
Origin D700GFX	Matrix Duron 700D	Picasso D650 Home Office	Systemax D700RV	700D XL Professional	Kudos
Evesham	Mesh	Polar	Simply Computers	Time	Titan
Direct	Direct	Direct	Direct	Direct	Direct
0800 038 0800	020 8208 4206	0800 138 1238	08707 297644	01282 777555	0870 442 1248
£999 (£850 ex VAT)	£999 (£850 ex VAT)	£999 (£850 ex VAT)	£999 (£850 ex VAT)	£998 (£849 ex VAT)	£999 (£850 ex VAT)
1 year back to base	1 yr on-site + 2 yrb-to-b	3 years back to base parts and lab	1 year back to base 2 years labour only	1 year back to base	1 year back to base 4 years labour only
£40	£40	£29	£35	£40	£29
None	None	3%	None	Cash only	None
Duron – 700	Duron – 700	Duron – 650	Duron – 700	Duron – 700	Duron – 700
Microstar 6340	Asus A7V	Gigabyte GA-7ZM	Abit M7VKX	Microstar 6340	Gigabyte GA-71XE4
VIA KT133/686A	VIA KT133/686A	VIA KT133/686A	VIA KT133/686A	VIA KT133/686A	AMD 751/756
133	100	100	133	100	100
128	128	128	128	128	128
1GB	1.5GB	1.5GB	1.5GB	1GB	768
64	64	64	64	64	64
19.0	19.1	23.8	19.0	27.5	14.2
Maxtor	IBM	IBM	Maxtor	Seagate	IBM
Pioneer – DVD 10x	Pioneer – DVD 10x	Pioneer – DVD 10x	Pioneer – DVD 10x	Pioneer – DVD 10x	Hitachi – DVD 10x
Floppy, V90 modem	Floppy, 56K modem	Floppy, 56K modem	Zip 100, floppy, V90 modem, Epson Stylus Color 480	Samsung CD-RW, floppy, V90 modem joystick, gamepad	Floppy, V90 modem
0	0	0	1 – 1	0	2 – 2
3 – 2, 1	5 – 3, 1	3 – 3, 1	5 – 4, 1	3 – 2, 1	5 – 2, 1
2 x 9, 2 x USB	2 x 9, 5 x USB	2 x 9, 2 x USB	2 x 9, 2 x USB	2 x 9, 2 x USB	2 x 9, 2 x USB
1	1	1	1	1	1
Taxan VVision 1710	Taxan VV 1710	Hansol B19BL	CTX PR705	Time 17s	Iiyama VM Pro 410
17	17	19	17	17	17
16.00	16.00	17.75	16.00	16.00	15.75
0.27	0.27	0.26	0.24	0.28	0.25
3D Power Ultimate	3D Prophet SE	3D Prophet II	3D Power Ultimate	3D Prophet DDR	Matrox Mill G400
32	32	32	32	32	32
SoundBlaster 128	SB Live! Value	VIA PCI Audio	VIA PCI Audio	SoundBlaster 128	SoundBlaster 128
Creative SBS52	Creative PC Works	Labtec LSC1030	Creative SBS52	Time	Busby 71003
Logitech Pilot Plus	MS Intellimouse	Digital	Logitech Pilot Plus	MS Intellimouse	MS Intellieye mouse
Windows ME	Windows 98 SE	Windows 98 SE	Windows 98 SE	Windows 98 SE	Windows 98 SE
MS Works 2000 Suite, DVD/modem/sound utils Mill, Standard software pack	MS Works Suite 2000, modem/sound utils DVD/modem/	Smartsuite Millennium, DVD/modem/ sound utils	Norton Utilities, DVD/Zip/modem/ sound utils	MS Works 2000, Smartsuite DVD/modem/ sound utils Exec software pack, DVD/CD-RW/modem/ sound utils	MS Works 2000, modem/ sound utils
Award	Award	AMI	Award	Award	AMI
161 – 82	178 – 67	182 – 79	131 – 124	182 – 70	144 – 82
Some Video 2000 tests didn't display	None	3DMark wouldn't complete	Windows set for US	None	None
8	9	7	9	10	8

## PCPlus BENCHMARKS

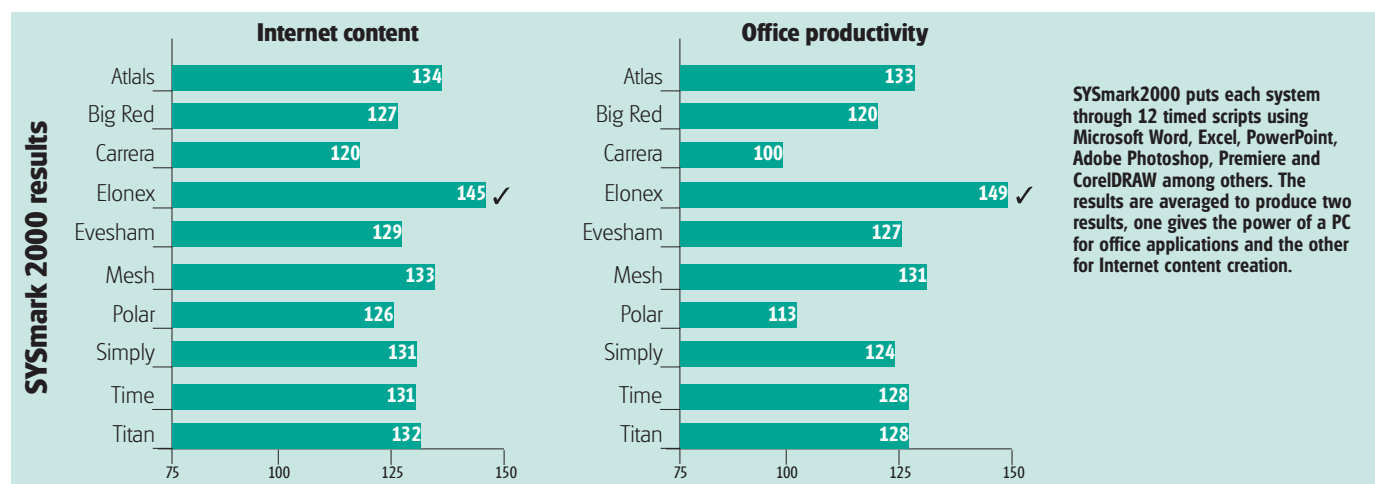
Our benchmark is designed to provide a quick and thorough guide to overall system performance. We test individual aspects of performance.

For full in-depth details on how our benchmarking system works, please visit [www.pcplus.co.uk/bench](http://www.pcplus.co.uk/bench).

### PCPlus Combined benchmark scores



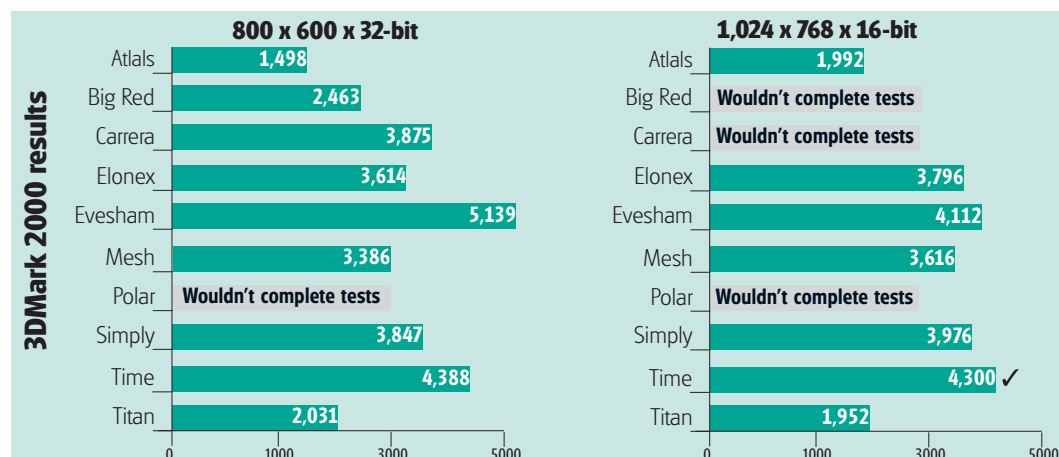
The overall PC Plus benchmark score is an amalgamation of our benchmarks and is indexed against a standard 500MHz Intel Celeron system. This means you can instantly see just how fast any PC system is.



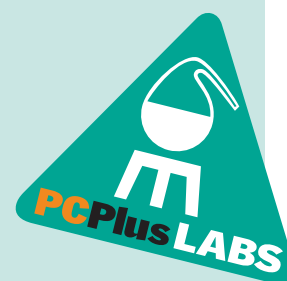
SYMark2000 puts each system through 12 timed scripts using Microsoft Word, Excel, PowerPoint, Adobe Photoshop, Premiere and CorelDRAW among others. The results are averaged to produce two results, one gives the power of a PC for office applications and the other for Internet content creation.

	Features	Performance	Quality	Overall
Atlals	593	639	1,104	2,337
Big Red	Wouldn't complete tests			
Carrera	599	637	1,104	2,340
Elonex	599	741	1,104	2,444
Evesham	599	775	1,024	2,398
Mesh	599	732	1,104	2,435
Polar	599	705	1,078	2,382
Simply	599	715	1,104	2,417
Time	586	748	1,029	2,363
Titan	Wouldn't complete tests			

Video2000 tests the performance of MPEG decompression – this means you get a sense of how good the system is at playing video.



We use 3DMark running at two resolutions. This assesses the suitability of a PC for 3D games and rendering applications.





# PCPlus VERDICT

The Duron is going to give Intel's Celeron a run for its money. In the same way Intel has lost Pentium III sales to the Athlon, it could lose Celeron sales to the Duron, certainly if this month's winners are anything to go by

## Analysis

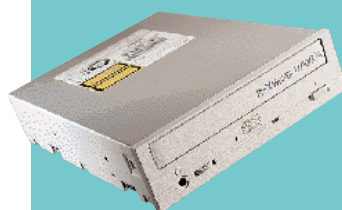
### WHICH DRIVE?

I really thought that by this time we'd have made the move away from floppy disks as the standard for removable data storage and have all gone for either Zip or the LS120 Superdisk. Both formats seemed to offer a lot, mainly an increase in the amount of stored data from 1.44MB to 100MB or 120MB. It appears neither is going to take the Storage for Everyman crown, though.

I suspect this is partly because the cost of Zip and Superdisk drives hasn't dropped like that of floppy drives, so suppliers are still not fitting either as standard. Without every new PC leaving the factory with one of these two drives, they're never going to become ubiquitous – I believe this is short-term greed on behalf of the drive manufacturers, who seem incapable of seeing the bigger picture.

It may already be too late for either drive, anyway. CD-RW is here and this really is becoming the removable medium of choice, for several reasons. The drive may be three times the price of Zip and Superdisk (this will change), but it can read CDs and record CD-Rs as well as being used for CD-RWs.

The real attraction of CD-RW, though, is that discs now cost around £1.60 each, for 640MB of data storage. Iomega still wants around £8 for a 100MB Zip disk and Imation wants much the same for a 120MB Superdisk. Which would you rather spend? At this sort of price – much the same as a CD-R blank a few years ago, and with CD-RW reading and writing rates outstripping those of the other two formats, the choice really is becoming a no-brainer.



↑ CD-RW drives are undoubtedly the best storage devices for PCs.

#### EDITOR'S CHOICE

### → Time 700D XLf Professional

PRICE £998 EX VAT £849

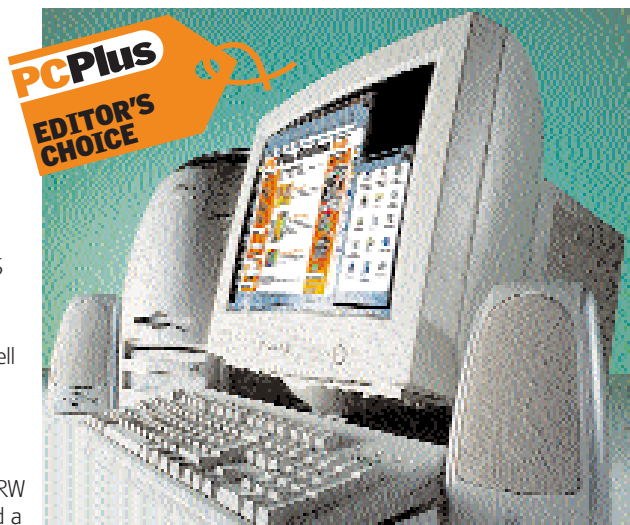
SUPPLIER Time PHONE 01282 777555

WWW www.timecomputers.com

Time sells enough computers to have enviable buying power and it uses it well in compiling its new systems. The 700D XLf Professional has a spec as good as any in the group and a performance several of the others can't match.

On top of such goodies as twin CD-RW and DVD drives, a fast graphics card and a capacious hard drive, Time includes extras like a joystick and gamepad and more software than you can throw a stick at. The machine looks good, the keyboard and mouse are comfortable and you even get a couple of quid change from your £1,000 budget.

Note that if you fancy one of these machines, you'll need to pay now – Time doesn't offer credit on



the deal – and ring the special Time phone number in the comparative table. Given the value offered by the system, these restrictions seem reasonable to us.

**PCPlus Verdict .....10/10**



#### BEST VALUE

### → Simply Systemax D700RV Home Office

PRICE £999 EX VAT £850 SUPPLIER Simply Computers  
PHONE 08707 297644 WWW www.simply.co.uk

Simply's Systemax D700RV Home Office was only a squiggle behind Time's machine and also offers exceptional value. Again, it uses a good core mix of components and adds in a GeForce 2 MX graphics card, with a much better monitor than Time's. It loses out by not having a CD-RW drive, although the Zip is some compensation, and in not having the software. It does include a useful little Epson ink-jet though, so the balance may be more what you need than Time's approach.

**PCPlus Verdict .....9/10**



#### BEST PERFORMER

### → Mesh Matrix Duron 700D

PRICE £999 EX VAT £850 SUPPLIER Mesh Computers  
PHONE 020 8208 4706 WWW www.meshplc.co.uk

Mesh goes for speed with the Matrix Duron 700D and does very well on both the SYSmark and 3DMark benchmarks, something which wasn't that easy to achieve in this group. It includes a good five-way set of speakers, a decent GeForce-based graphics card and a better than average Taxan monitor. The system is a bit of an all-rounder as it is as well suited to heavy business applications as it is to graphics, leisure and games playing.

**PCPlus Verdict .....9/10**



CD-RW

## PleXWriter 12/10/32A

**PRICE** £229 **EX VAT** £195 **SUPPLIER** Plextor **CONTACT** See Web site for UK distributors **ONLINE** [www.plextor.com](http://www.plextor.com)

**If you're after a fast CD-RW and haven't got a SCSI card, then look no further**

**H**ot on the heels of the brand new Burn Proof offering from Mirai comes Plextor's latest CD-RW. This uses the same technology from Sanyo that we tested last time around on the Mirai. However, Plextor has chosen to use a standard IDE interface instead of SCSI. This makes it an

.....  
**Tested on**  
 Athlon 600  
**Extra information**  
 Comes with CeQuadrat's WinOnCD software

attractive upgrade option for anyone who still doesn't have a SCSI card in their system.

Installation is a straightforward affair and the drive would make an ideal swap out for an existing CD drive. If you're thinking of taking on a lot of disk copying, then it may just pay to retain your old CD drive for on-the-fly processing, and installing the PleXWriter as a slave drive. We gave it a thorough testing under all conditions and there can be absolutely no doubt that this technology is a real winner.

This is the fastest CD-RW we've seen with a claimed 12-speed write and 10-speed re-write. We did all the wrong things, connected source CD and writer on the same bus, used cheap media and carried on working at the same time as copying a CD at 12 speed. Result: a perfect copy of a full CD in less than nine minutes – highly impressive.

### The software

The excellent WinOnCD recording software from CeQuadrat comes bundled with the drive. And it includes PacketCD for UDF support, you'll be able to use your CD-RW media as if it were a removable hard drive. Other software includes a backup program and utilities disc from Plextor.

As you'll see from the results table that we've published on our Web site, the drive performs well as a standard CD returning an above average result with CD-Tach. Write speeds are very fast and produced one of the best times we've ever seen for copying a CD and writing 20MB of data to a CD-R. We couldn't achieve the full 10x speed for CD-RW without running the Burn Proof technology on their new 10 speed media, but even at the maximum 4x on standard CD-RWs it performed exceptionally.

It is undoubtedly a great piece of kit. You may have to pay a bit more to get this new technology but if you're thinking of buying a CD writer, don't consider anything that's not fitted with Sanyo's new Burn Proof technology.

**Paul Warner**

### PC Plus Verdict

#### PLEXWRITER 12/10/32A

✓ **FOR**

→ It can't be bettered

✗ **AGAINST**

→ Not as cheap as it will be in six months

<b>Specification</b> .....	<b>9</b>
<b>Quality</b> .....	<b>9</b>
<b>Performance</b> .....	<b>10</b>
<b>Value for money</b> .....	<b>9</b>
<b>OVERALL</b> .....	<b>9</b>



➤ A solid drive that'll take the knocks but you've got to pay for it.

SCSI DVD-RAM

## LaCie external SCSI DVD-RAM

**PRICE** £469 **EX VAT** £399 **SUPPLIER** LaCie  
**PHONE** 020 7872 8000 **ONLINE** [www.lacie.co.uk](http://www.lacie.co.uk)

**LaCie quality and performance – at a price**

**W**hen we first saw DVD-RAM, prices were high. But now more are available, they've hardened and it's possible to pick one up for well under £300. So why should you fork out £469 to buy the latest DVD-RAM from LaCie?

This version is an external drive fitted

.....  
**Tested on**  
 Athlon 600 with  
 Adaptec 2940 SCSI Card

in a solid metal case, designed to stack on similar cases for a tidy installation of multiple SCSI devices. LaCie supplies a range of equipment all using the same case, so you could have a DVD-RAM, tape unit and external hard drive all connected with one cable.

The interface is standard SCSI and comes with both PC and Mac software. Unlike previous drives that we've looked at from LaCie, this one didn't include a SCSI adaptor card. If your machine doesn't have one installed, then you'll need to add the cost of this to the drive.

We connected it to an Adaptec SCSI card and the system recognised the new drive as a CD-ROM. To gain access to the DVD features, you need to install WriteDVD from Software Architects. With this installed, the drive functions as a DVD/CD using one icon on the filing system. Another represents the removable DVD-RAM cartridge that functions like a removable hard drive. These cartridges hold 2.6GB per side, and at around £20 each offer amazing storage value.

We ran our normal tests using CD-Tach and a selection of files to test transfer speeds. With CD-Tach the drive reported a speed rating of 8.0-times and, as you'll see in the results table on our Web site, some reasonable performance figures writing to DVD-RAM. We tried a couple of large files from the **PC Plus** Cover DVD and transferred over 5MB in about three seconds – that's quick.

The only disappointment was copying large files from CD-R to a hard drive. We use a test CD with six 100MB files on it. Measuring the transfer time of each file gives an indication of drive performance at different positions of the read head. The best result we could get was over 18 minutes to copy one file across. Smaller files copied faster, but if you intend to read large files like graphics images from CD-R you may have to think again.

It's hard to justify this sort of price for the average user. If you want a multi-platform external DVD-RAM that's solidly built or are already committed to this style of external drive, then it may be for you. However, you could probably find an internal drive at half the price and make good use of a couple of hundred quid.

**Paul Warner**

### PC Plus Verdict

#### LACIE EXTERNAL SCSI DVD-RAM

✓ **FOR**

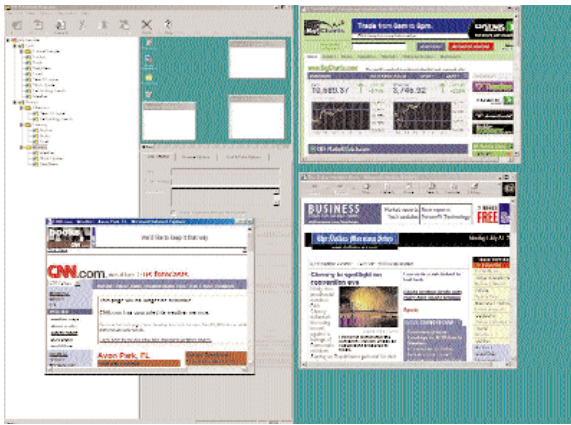
→ Solid reliable performer suited to cross-platform use

✗ **AGAINST**

→ Expensive  
 → Very slow reading from CD-R

<b>Specification</b> .....	<b>9</b>
<b>Quality</b> .....	<b>8</b>
<b>Performance</b> .....	<b>7</b>
<b>Value for money</b> .....	<b>5</b>
<b>OVERALL</b> .....	<b>7</b>





## WEB PRODUCTIVITY SOFTWARE

# My Favorites 1.1

**PRICE** \$2995 **SUPPLIER** inKline Global  
**ONLINE** [www.inklineglobal.com](http://www.inklineglobal.com)

**Power surf your way around the Web with this innovative multi-site launcher**

If you need to access the same pages each and every time you go online, or you need to adjust regularly visited pages for a higher resolution monitor, or you even want to make certain pages a regular fixture of your desktop, then My Favorites is the perfect answer.

**Minimum requirements**  
Pentium Processor, 8MB RAM, 8MB hard drive space, Internet access through modem, ADSL, ISDN or DSL, Win95, 98, NT or 2000, Internet Explorer 4.0 and above  
**Tested on**  
Pentium III 800, 256MB RAM, dual channel ISDN, Win98 SE, Internet Explorer 5

My Favorites has been designed to make using the Internet a friendlier and easier experience, so that you spend less time organising and launching Web sites, and more time actually viewing their content. It performs a variety of functions, and you can use all or just some of them.

For the power user, it has the capability to launch multiple sites at the same time, either when you boot up, or when you open your browser. At first, this might just seem like the ultimate in Internet idleness, but if you consider a profession where, for example, you regularly need to access information from the same sources — a news feed, a stock report, a search engine and a business update — then you suddenly start to realise what the potential benefits are.

Furthermore, it's possible to choose the way in which each site is launched, where that particular window is positioned on the screen and how often it updates itself. For instance, you might want your news feed to update every 15 minutes, whereas you might require a minute-by-minute update on your stocks and shares.

My Favorites also enables you to specify options for every single Web site that you've chosen for your

Favourites folder. So, for example, it's possible to decide whether a program launches in a new browser window, or whether it replaces the contents of the current one. You can also specify the text colour and font sizes so that they override any defaults. You can even decide which menus and toolbars you wish to be visible as part of your browser window, and this may enable you to fit more windows on the screen at any one time.

My Favorites is easy to use and it enables you to make better use of your screen, your connection and the contents of your Favourites folder. It is without doubt a useful tool for the serious Internet surfer. The only real drawback is that it only works with Internet Explorer.

**Mat Broomfield**

## PCPlus Verdict

### MY FAVOURITES 1.1

✓ FOR	✗ AGAINST
→ Sets individual site properties	→ Requires a decent connection to be practical
→ Better usage from fast connections and big monitors	→ Only works with Internet Explorer

<b>Specification</b> .....	7
<b>Quality</b> .....	8
<b>Performance</b> .....	7
<b>Value for money</b> .....	7
<b>OVERALL</b> .....	7



## E-TEXT READER

# TomeRaider 2

**PRICE** £15 **EX VAT** £13 **SUPPLIER** Palmtec  
**CONTACT** 02476 465 723 **ONLINE** [www.palmtec.com](http://www.palmtec.com)

**An e-text reader for your EPOC or Palm OS hand-held — oh, and it runs on your PC, too**

TomeRaider 2 is an e-text reader for EPOC, Palm and Windows operating systems, although a version for PocketPC is in beta and can be downloaded from the TomeRaider Web site at [www.tomerader.com](http://www.tomerader.com). As an e-text reader, TomeRaider is nothing without books. There are currently several

**Minimum requirements**  
Any Palm OS or EPOC hand-held. Users must register separate editions of the software for different hand-helds.  
**Tested on**  
Psion Series 7

hundred available for free download from the Web site. The range includes classic novels, works of philosophy, dictionaries, poetry, encyclopedias, recipe books and religious works. Files vary in size. Zipped for download, I found the bible — both Old and New Testaments — at 2MB, and Webster's Encyclopedia at 11MB. Dickens' A Tale of Two Cities is almost 400K. Files

are compressed into a relatively small space on the hand-held — A Tale of Two Cities took up just under 500K on our Series 7, but nonetheless EPOC

users will need a compact flash card to make the most of TomeRaider, and Palm OS devotees currently using Palm hardware may feel the Visor, with its support for memory expansion, beckons.

You can easily download files as plain text from a number of sources on the Web, and read them on a hand-held. I've been using Word in EPOC for just this task since I got my first EPOC device. But TomeRaider adds some features that aren't available using that method. Hyperlinks between files can be easily created, enabling those who generate TomeRaider files to set up chapter lists, indexes and so on. Perhaps more usefully when actually reading texts, you can set and annotate bookmarks to record points of interest. Students might find this an aid to making notes for essays.

The application itself makes good use of text formatting — bullets, bold, underlining and so on, but you can't switch fonts. The supplied Ariel-like font is clear enough, but double or 1.5 line spacing might make it easier to read. I'd also have liked bookmarks to show on the page where they have been placed — instead you use a drop-down menu to get to them.

TomeRaider 2 is a very good idea, and I particularly like the fact that so much formatted text is available for free. The software could use some enhancements, but at the price it is a good buy, and users of TomeRaider 1 can get the new version as a free upgrade. Overall, it is easier to use with reference works, where things are divided into small sections, than with plain texts.

**Sandra Vogel**

## PCPlus Verdict

### TOMERAIDER 2

✓ FOR	✗ AGAINST
→ Inexpensive	→ Needs more features to aid readability
→ Good use of hyperlinks and bookmarks	→ E-text library still relatively small
→ Runs fast	

<b>Specification</b> .....	6
<b>Quality</b> .....	7
<b>Performance</b> .....	8
<b>Value for money</b> .....	7
<b>OVERALL</b> .....	7



**P**reparing a digital video is one thing – see the group test of video editing systems in issue 168 for details of what that's all about – but getting the finished result on to media, which can be copied and distributed, is quite another. The Digital Cut Machine (DCM) from Vitec, marketed in the UK by Designlab Systems, is a combination of hardware and software designed to ease the process of creating a DVD.

## What does it do?

First of all, a word on what DCM is not. It's not a complete solution for creating DVD, as it doesn't include a DVD-RAM or DVD-R drive. These range in price from several hundred to several thousand pounds, depending on the type and model of device. You can save DVD-format MPEG-2 video to a CD-R or CD-RW disk, but you'll be limited to around 20 minutes of video because of the capacity of the CD.

DCM is a hardware MPEG-2 encoder, with software to conduct final edits and assemble video segments before 'burning' a disc (recording all the information on to it). It's divided into a number of different parts. The editing card itself sits beside your own graphics adapter, offering digital video (DV) and sound inputs and outputs and providing hardware encoding of video to the MPEG-2 standard.

The hardware consists of a half-length PCI card with mini jack sockets for audio input and output and mini DIN plugs for S-video I/O. There's no break-out box to make connection to the card easier, so you will have to scrabble round the back to connect up your video source.

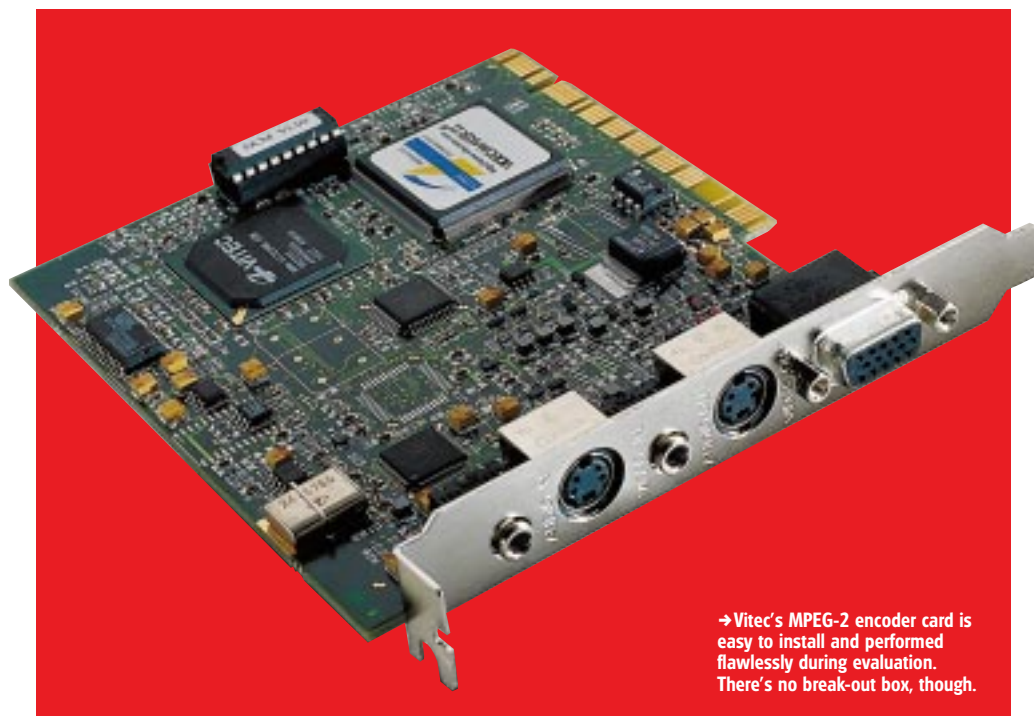
Video Clip MPEG-2 is the video editor of the software suite, but does little more than act as a viewer for your clips. It can trim frames and cut and paste them, but there's no facility for adding transitions or other effects. There's no multi-channel timeline for viewing different video streams and the changes you can make to clips are very limited.

## Converting files

MPEG Maker is specifically tasked with converting AVI files to MPEG-2 or DVD format files and this it does competently enough, particularly with the help of the Vitec hardware on the card. MPEG remix does the same kind of thing for the audio MPEG channel.

DVD Maker couldn't be much simpler to use. It looks just like a file selector and you print and click at the source MPEG files from a list on the left-hand side and add them to a list on the right. The software then combines and converts these to DVD video format.

The ideal is to write your completed video to a DVD recorder. Few consumers will be able to afford the kind of prices these drives fetch, though and a more realistic destination will be a hard drive, or a recordable CD. To help with recording to CD, you can construct a mini DVD,



→ Vitec's MPEG-2 encoder card is easy to install and performed flawlessly during evaluation. There's no break-out box, though.

## DVD MAKER

# Vitec Digital Cut Machine

PRICE £764 EX VAT £650 SUPPLIER Vitec

PHONE 0020 7437 5621 (Designlab Systems) WWW [www.designlab.co.uk](http://www.designlab.co.uk)

**Want to design and create your own DVDs? Digital Cut Machine will make things easier**

using the DVD video format, but on a much lower capacity CD disc. A licence-free software player for the DVDs produced by DCM is provided and can be distributed free with these mini DVDs to play them back.

In the end, you have to ask yourself why you would pay £764 for DCM with its comparatively basic editing facilities, when the same kind of money would buy you a Matrox RT2000 – or £200 less would buy you a Pinnacle DV500. Both products come complete with a full copy of Adobe Premiere and numerous clips and special effects.

Both products contain hardware MPEG-2 encoding and the RT2000 can prepare images for DVD recording, like DCM can. DCM, though, doesn't have the same quality of software, can do little of the sophisticated editing that Premiere makes possible and requires a higher specification PC to perform the work.

In fact we wonder why Vitec recommends an 800MHz processor for DCM, when the MPEG-2 encoding is all supposed to be done in hardware. Most systems of this type don't need anything special in processor terms,

because most of the work is done by the graphic card and encoder cards in parallel.

## Summing up

Overall, while this kit does what it claims to do, it doesn't offer anything like the versatility of competing products, particularly if you think you might need more comprehensive editing facilities in the future.

**Simon Williams**

.....

## Minimum requirements

Pentium III 500 (Pentium III 800 recommended), 128MB memory, AGP graphics card, 1024 by 768 by 16-bit display

## Tested on

Pentium III 800, 128MB memory, nVidia Riva TNT2 Ultra

## Available on

CD  
**Publisher**  
Vitec Multimedia  
(Designlab Systems)  
[www.vitecmm.com](http://www.vitecmm.com),  
[www.designlab.co.uk](http://www.designlab.co.uk)

## PCPlus Verdict

### DIGITAL CUT MACHINE

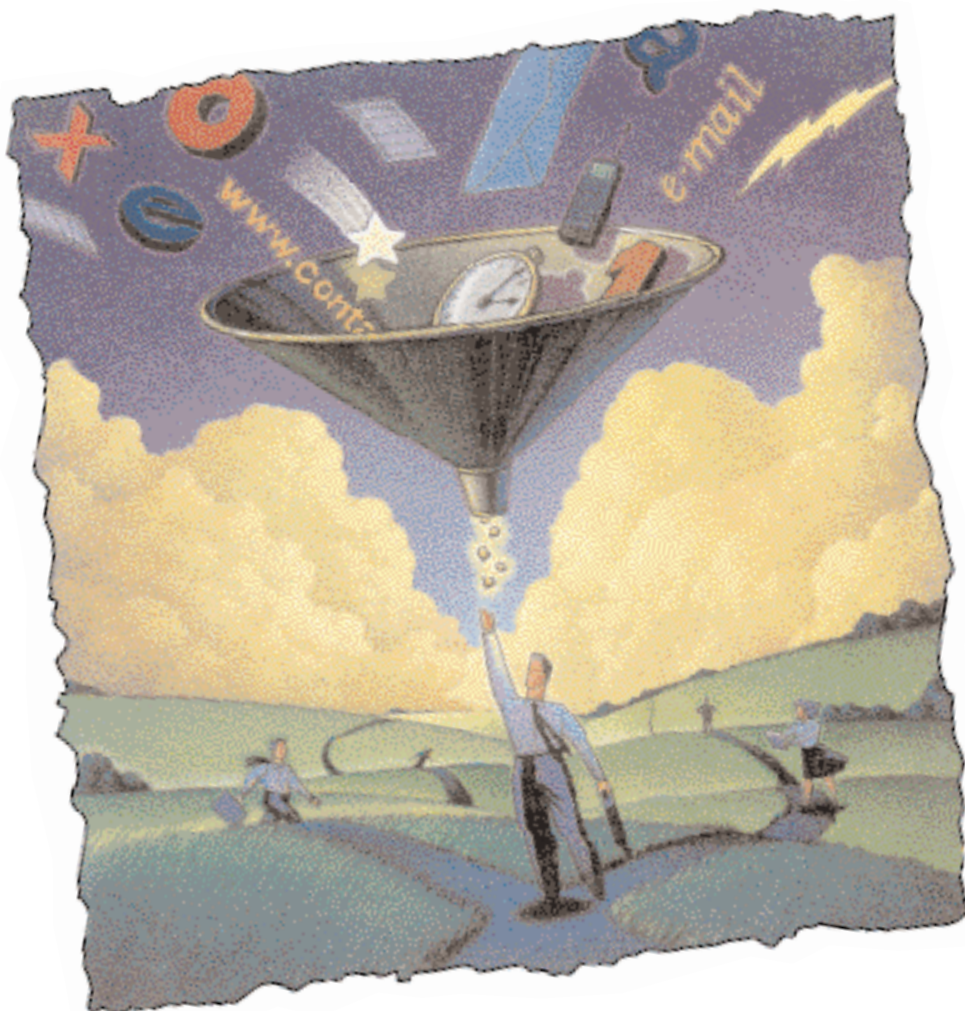
#### ✓ FOR

- Easy to install
- Produces MPEG-2 video quickly
- DVD software player for free distribution

#### ✗ AGAINST

- Editor little more than clip viewer
- Not particularly high level hardware specification

Specification .....	6
Quality .....	7
Performance .....	7
Value for money .....	5
<b>OVERALL .....</b>	<b>6</b>



**Full product: worth £199**

# GoldMine 4.0

**Paul Ravening** grabs his pickaxe and heads off in search of riches. Oh, and automates his business on the way.

several routes (including the Internet), performance analysis, creation of branching telephone scripts, and more.

And as you'd expect, GoldMine offers the full set of basics – searching for contacts, phone dialing, call logging, and so on. E-mail and Internet integration are also among its strengths. The program has a built-in e-mail client for communicating with other GoldMine users on your network, and it automatically logs incoming (POP3) and outgoing (SMTP) mail to the relevant contact's history log.

You can also send mail using MAPI or VIM, although GoldMine doesn't log these messages. This release lets you launch to URLs and accept data from Web pages, use it to create new contact entries automatically, and tie the pages to custom-automated task sequences.

GoldMine's interface can be a little confusing, which is a shame as it often hides more sophisticated features. But if you're willing to spend time learning it, you'll find that GoldMine is one of the most capable contact managers available. And to help you along the way, the entire set of manuals are available on the disc. Just follow the links from the SuperDisc interface.

**Paul Ravening**



**G**oldMine 4.0 automates every aspect of your business, including contact and calendar management, lead tracking, sales forecasting and marketing via the Internet. With Remote Synchronization, GoldMine gives you access to the most current contact information while you're working in the field. GoldMine helps you turn your contacts into gold! GoldMine's basic view is the individual contact record, which takes up most of the workspace. Each dialog's upper portion displays core information for an individual, such as name, address, and phone number. The bottom half consists of a series of tabbed cards

with additional information about the contact – notes, user-defined fields, history items, pending tasks and appointments, and more. This format lets you easily see all the information you need.

One of the most innovative features is a graphical tree of related contacts – basically an organization chart. Its obvious function is to link all contacts in the same company, but you can add any other relevant individuals, such as PR contacts. Even better, you can switch to the record for any linked contact simply by highlighting the name. This chart acts as a more in-depth referrals tab.

The Graphical Calendar is also a very useful tool. It lets you view more than one activity entry in a

time slot and see entries for events that span multiple days. Also, it displays 'to do' items in a separate area in the Daily view, and it shows shorthand details of scheduled events in the Month view.

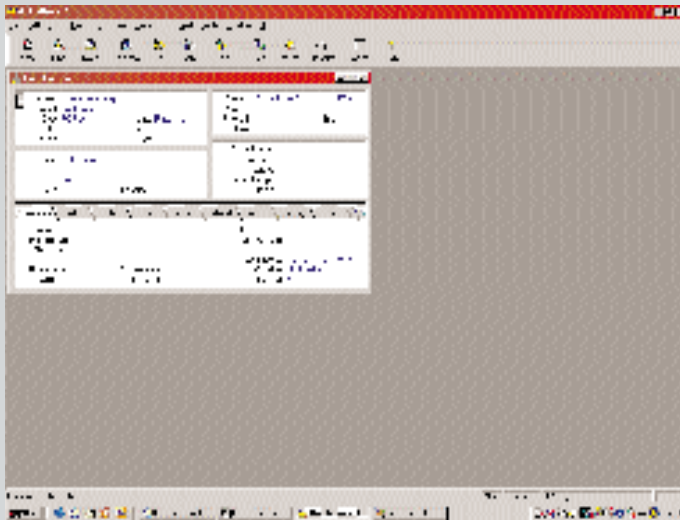
One of GoldMine's advantages is that it offers many ways to view information. This version adds a Planner view, Outline view, and Pegboard. The Planner is useful for group scheduling; you choose which users to include, and it represents them with different colour blocks so you can see availability at a glance. The Outline view lets you see appointments in a collapsible format.

No other contact manager has such a variety of functions: synchronization at the field level by

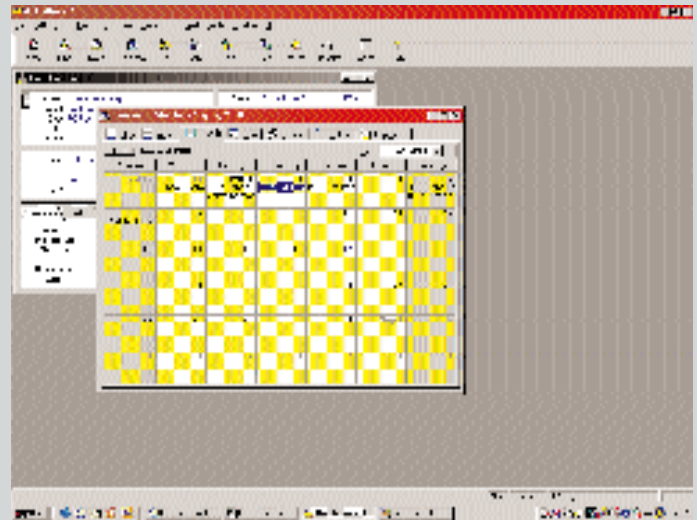


## → Getting started with GoldMine 4.0

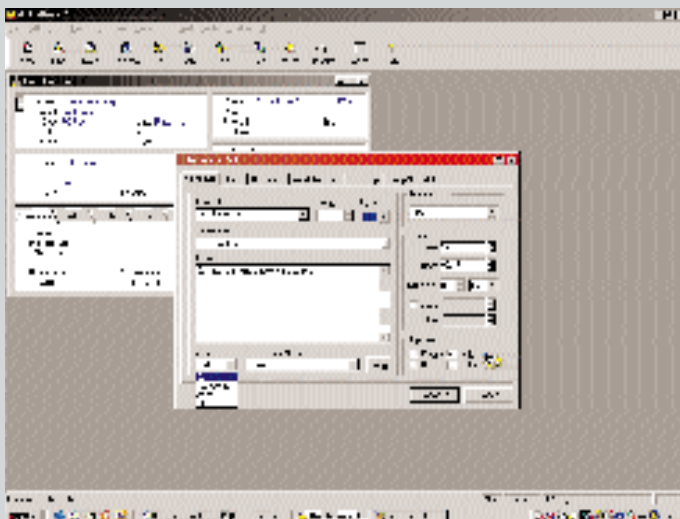
So what can you do in GoldMine. Lets have a brief look through the main features



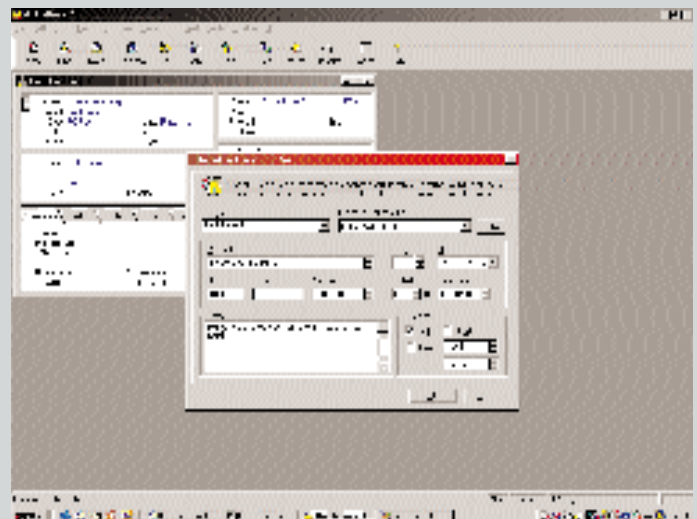
**1** This is the Contact view in GoldMine. Here, your list of people and companies stored in the program will be displayed, along with all their relevant details. The tabs along the bottom are pretty self explanatory, allowing you to view such items as notes about the contact and pending actions to be fulfilled.



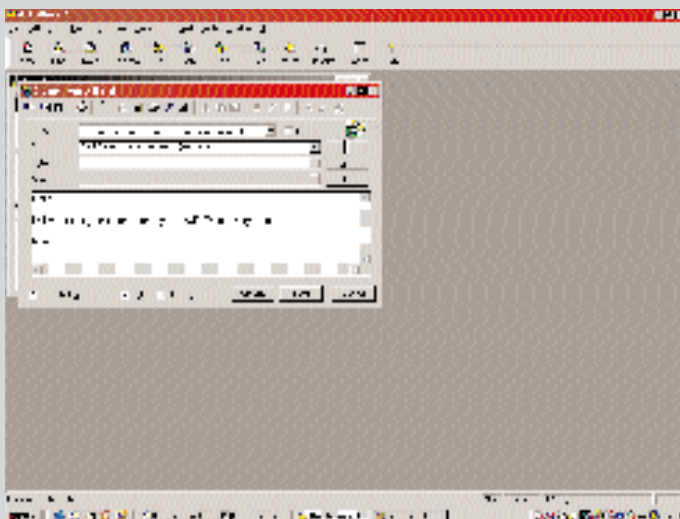
**2** This is the Calendar view with the basic, day, month and year fields. You can't actually enter information here, it's automatically filled in for you from other sources in the program. It's still a useful tool, though.



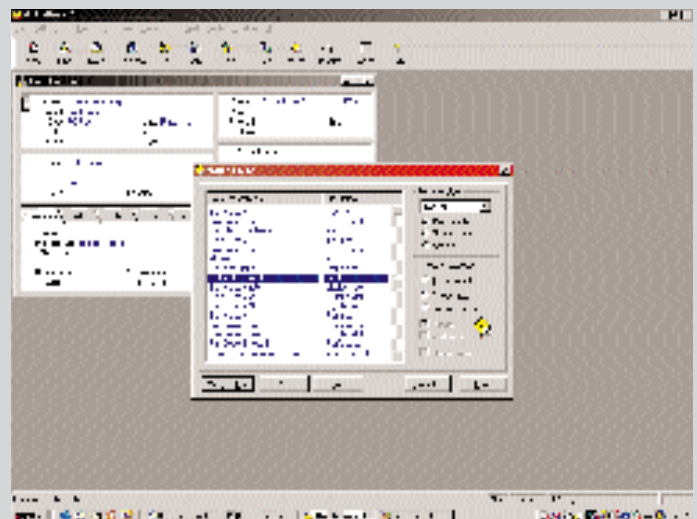
**3** Here's the Call window. Very useful if, like me, you end up forgetting to call people you're supposed to be contacting later in the day. You can set it up to remind you, keep an eye on the length of the call, and even add it to a call log automatically if your company uses one.



**4** If you work in the sales arena, you may have seen tools like this before. It's the Sales Forecasting window. Here you can use your contact details to set up a project, and then try to sell it. The idea is that everyone in your company who uses GoldMine can see the entry and refer to it.



**5** E-mail is also tightly integrated into GoldMine 4.0, as you'd probably expect by now. If you send a mail to your contacts, it records this automatically in that person's History file. No more forgetting to send those important e-mails



**6** Last in this walkthrough, but certainly not least, are the forms. These are business documents which are prepared by GoldMine, but exported to either Microsoft Word or Works. If you're after something specific, chances are it's here.





# Upgrade to GoldMine 5.0



Turn your contacts into gold with GoldMine 5.0 the indepth PIM for businesses

**S**mall- to medium-sized businesses needing to automate their sales and marketing teams seek a solution that can be easily implemented, at an affordable cost, and customized to fit the particular needs of that business.

Implementations of GoldMine 5.0 are rapid and scalable, offering companies the same benefits awarded to larger corporations, but at a fraction of the cost and time necessary to get the entire team up and

running. And in today's competitive business environment, the costs of not automating the sales and marketing functions can be great.

GoldMine 5.0 centralizes information and facilitates communication across your organization so that the sales team is working at maximum effectiveness – all the time. GoldMine details every prospect and customer, giving marketing teams the ability to know how, when and whom to contact at the core of potential and existing business.

## New and improved features include:

### Complete Contact History Tracking

Have instant access to everything that has happened with an account. Know who said what to whom and when.

### Document Management

Keep track of frequently used letters and e-mail templates and spend less time searching for the right information to send.

### Opportunity Management

Benefit from viewing a graphical representation of the stages, close dates and potential revenue of your entire pipeline, then use that information to determine where your time is best spent.

### PDA Synchronization

Take contact and calendar information on the road by synchronizing your Windows CE or Palm handheld with GoldMine.

### Automated Processes

Send marketing messages 24 hours a day, 365 days a year to keep your name in front of your prospects and customers. GoldMine will even automatically send out notices reminding customers of expiring contracts or regularly scheduled maintenance.

### Literature Fulfillment

Schedule literature requests to individuals or groups of contacts complete with the appropriate cover letter or other pertinent documentation. You can also keep track of your list of literature; what has been sent to whom, what has been printed and what is ready to go.

### Leads Analysis

Once the message has gone out, track responses and know what campaigns were effective to ensure that your marketing spend is delivering the anticipated returns.

### Sales and Quota Analyses

View forecasted sales, closed sales and comparisons between sales and quota at the click of a button. Instant access to sales information empowers you to make decisions faster and have a more immediate impact on your revenue.

### Custom Reports

Create reports that give you the information you need, whether it's an account history or the amount of closed sales over a customer's lifetime.

### Statistical Analysis

Quickly and easily view closed and lost sales, total calls and number of completed activities for a user or group of users.

### Web Data Capture

Collect leads and requests for information from your Web site any time, day or night. Use with Automated Processes to reduce the need for manual follow up and deliver pre-qualified leads to the sales team.

### E-mail Centre

Send and receive messages from GoldMine and automatically link them to a contact record. The e-mail features include support for e-mail rules, Out of Office AutoReply, enhanced searching capabilities, merge code support and e-mail templates for frequently used messages and mass mailings.

### Outlook E-mail Integration

If your company has adopted Microsoft Outlook Express, GoldMine 5.0 can integrate with the existing e-mail standard. GoldMine works hand in hand with OE to manage e-mail messages from your Outlook Inbox and synchronise not only e-mail messages but contacts, tasks and calendar activities as well.

## TO UPGRADE CALL 01189 387500 NOW!

## Essential Update

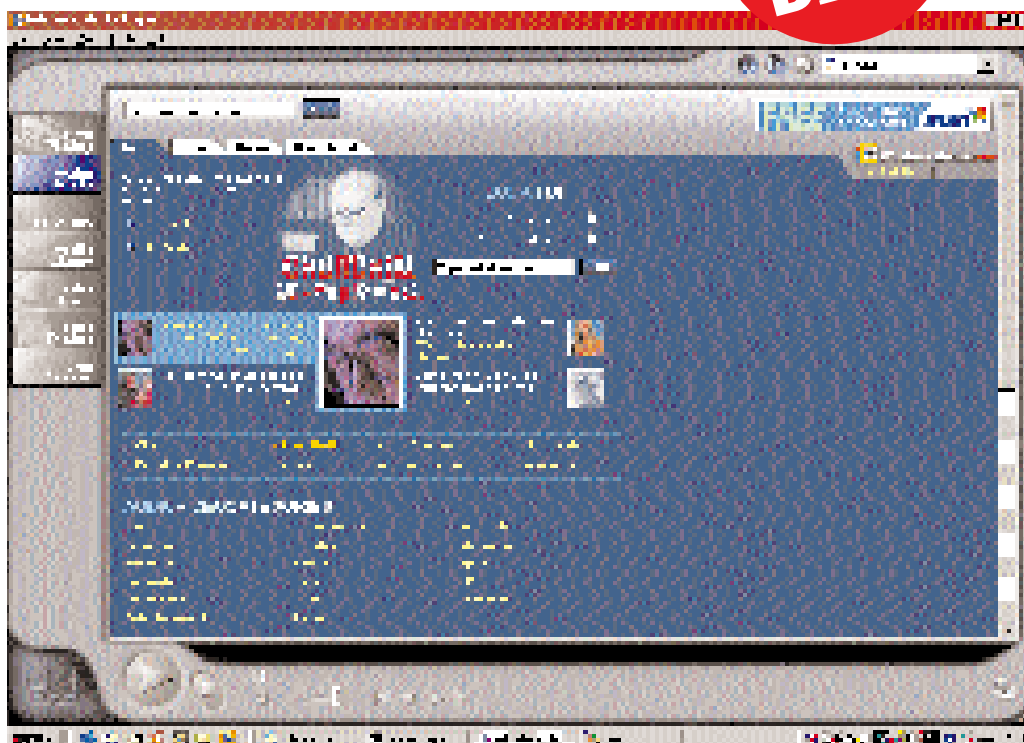
# Windows Media Player 7

The King is dead, long live the King. **Paul Ravening** tells you why MediaPlayer 7 deserves its crown



**Y**ou drop a music CD in your PC. It plays. You download a video clip from the Web. It plays. You tune into an Internet radio station to listen to streaming audio. The same. My point? You probably don't give a bit whose software plays digitised entertainment on your PC. As long as your Britney Spears and Dolly Parton MP3s – obtained legally, of course – play without a hitch, you're happy. But you should care. So that's why this month, we bring you the latest version of Microsoft's Media Player. Not just rehashed old code, Media Player 7 has been created from the ground up, making it swift, new and very useful indeed. I personally found the older Media Players to be the most stable and trustworthy in the media jungle. It might have been a bit limited visually, but it never killed my system regularly like other programs I could mention.

So what's new then? Well to start with, Windows Media Player 7 is easier to use because it integrates all of its features into a single point-and-click interface. A column of large buttons on the left side of the screen displays your options, and the contents of the central, browser-like window change to suit the task at hand. Curious about the Korean Top 40? Click the Radio Tuner button. Want to burn an audio CD? Select Portable Device. It's an impressive suite that combines the many aspects of modern media – broadband Webcasts, Internet radio, audio CD playback and, of course, MP3 – into a single ultra-slick program. While it doesn't completely solve the media-player muddle (you'll still need separate players for QuickTime and Real clips) Microsoft's keen effort raises the standard considerably. In performance, stability and ease of use it outstrips RealNetwork's RealPlayer and RealJukebox combo, while the tight integration soars above Real's bundling of those two separate



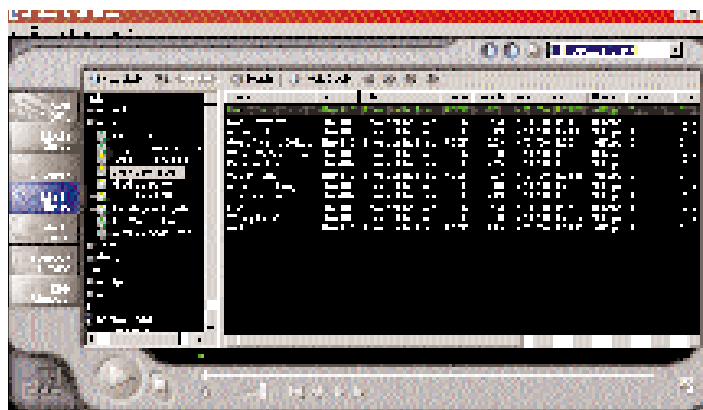
↑ Media Player's Media Guide page gives you up to date links on the Net, to sites with movie trailers, music videos, news stories and lots more

programs into its Real Entertainment Centre. There are also some surprises. For starters, while the program is capable of playing MP3 tracks, audio CDs can be copied only into Microsoft's Windows Media Audio (WMA) format. The lack of MP3 ripping is a let down, and I expect the search engines will shortly offer a plug-in that puts MP3 back into the mix, but don't let that put you off experimenting with WMA. A four-minute CD track recorded in WMA format at the 64Kbps setting sounds as crisp as a 128Kbps MP3 track, yet is only half the size – so you can cram twice as much music onto your hard drive or Zip disk.

Another big win is that the Windows Media Player works the other way, converting MP3 and WMA tracks into audio CD format and burning them onto a blank CD (if you have a CD writer) which can be played in your home hi-fi, car or

portable CD player. In addition to building and managing your digital music library, the player can shuttle tracks to and from your MP3 player. It also taps into Microsoft's Windows Media site for listing Webcasts and supplying downloadable content

such as music tracks and movie trailers; and there's plenty of ways to liven up the interface, from patterns that throb to the beat to WinAmp-like 'skins' that give the player a total interface lift. Don't delay, install today. **Paul Ravening**



→ The program will build up a library of all media types on your PC, which you can then access easily from this screen

Full Linux OS

# Linux Mandrake 7.1



Exclusive to **PC Plus** this month is Linux Mandrake 7.1 – the complete graphical Linux operating system

Only a matter of months ago, installing Linux was a fairly arduous task: First you collected arcane information about your hardware; then you defragged your hard drive and fired up a frightening DOS utility that (hopefully) shrunk your Windows partition to make room for the new OS; next you created a boot disk (more fun with DOS); and finally you battled your way through a text-based installer.

With Mandrake 7.1, those days are gone. Installing a whole operating system will never be a trivial task, but DraX, Mandrake's graphical installer, makes it deceptively simple.

## Required reading

Included in the ISO on the **SuperDisc** is a comprehensive Install Guide in HTML. It's required reading before beginning any installation. Open up the 'docs' folder and double-click on index.htm. Most of the points covered here are explained in more detail in the guide.

There are two basic installation methods: You either give Mandrake its own partition on your hard drive; or you install it under Windows on your Windows disk. If you're curious and want to see Linux in action before deciding whether to keep it, give the second a try – you won't have to divide your hard drive up into new partitions and removing Mandrake is easy.

There is a downside. Linux runs slowly from a Windows partition. And Linux4Win, the program that installs Mandrake under Windows, is still in beta. Despite what it says, it will only install to your C drive. Both virus checkers and lomega

## → Getting help

Run into a problem? Or have some questions? Help is at hand



↑ Got a question you want answered? Why not visit the **PC Plus Linux forum**.

**PC Plus** cannot offer phone or e-mail support for Mandrake or other Linux programs on our discs. But don't panic – we host an extremely active Linux forum. Visit our Web site or point your

[www.pcplus.co.uk](http://www.pcplus.co.uk)

newsreader at  
[news://nntp.futurenet.com/  
pcplus.linux](mailto:news://nntp.futurenet.com/pcplus.linux)

Your question may well have been answered already, so read the previous postings. If you do ask a question, please send it in plain text, not HTML.

## DVD ONLY

## → Burn it!

The distribution is included as an ISO image this month, so read this first...

You cannot simply insert your **SuperDisc** in to your DVD-ROM drive and install Linux Mandrake 7.1. The file on our **SuperDisc** this month is an ISO image, suitable for reading by CD burning software. You will need to have a CD-R or a CD-RW drive to create an installation CD.

We had to create an ISO image this month, due to a peculiarity of single-sided DVD duplication. In the future, we plan to run double-sided 'special' DVDs, including a Linux distribution. In the meantime, for those of you with a CD Writer, you can get your hands on this top new distribution!

If you are unsure about how to burn an ISO image, please consult your manual, or visit our forums at [www.pcplus.co.uk](http://www.pcplus.co.uk).

Guest, which run at startup, prevented it from working on our test machines.

## Give Mandrake a home

We strongly recommend you give Mandrake a permanent home on your system. With Mandrake's new installer there's no messing about with dodgy DOS partitioning tools. If you choose the defaults, it will automatically shrink your Windows partition to fit. And if you're an old pro, you can chop up your drive any way you want.

There's another advantage of putting Mandrake on its own partition: if Windows dies, you can always rescue your data from Linux. Mandrake is good at detecting hardware, but not perfect. If your computer is fairly new and you aren't using any arcane bits of kit,

everything should go fairly smoothly. But it's worth right-clicking on My Computer and having a peek under properties to see if you've got any old ISA devices that might not be detected. See section 3.2 of the Install Guide for details.

Some devices, such as sound cards and zip drives, are configured after installation, but don't worry about them for the moment. Not all are supported – Section 8 of the Install Guide details detecting them.

If you're giving Linux its own partition, give your drive a defrag to free up more space. Open My Computer, right-click on the drive and select Properties. Then click on the Tools tab and click Defragment Now. Once it's done, run Scandisk over it to make sure everything's fine, then dive on in!

**Matt Kynaston and Rob Fenwick**

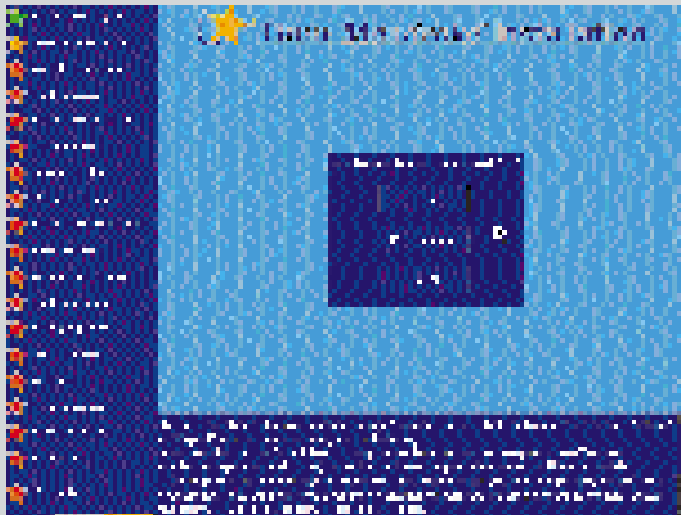


[www.pcplus.co.uk/forums/linux](http://www.pcplus.co.uk/forums/linux)

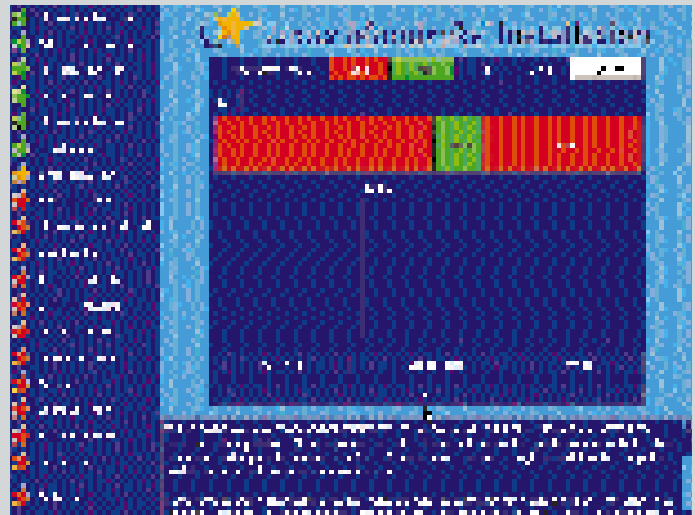


## Installing Linux

Mandrake is one of the easiest distributions to install. Here we walk you through the main steps



**1** Defrag your hard drive, then run Scandisk over it to make sure all's okay. If your computer is set up to boot from CD-ROM, simply put the disk in your drive and restart. Otherwise, see section 4.2 of the Install Guide to create a boot disk. The graphical installation is self-explanatory, so we'll only cover the important steps here. You'll be prompted to choose your language, then your Install Class. Click Recommended.



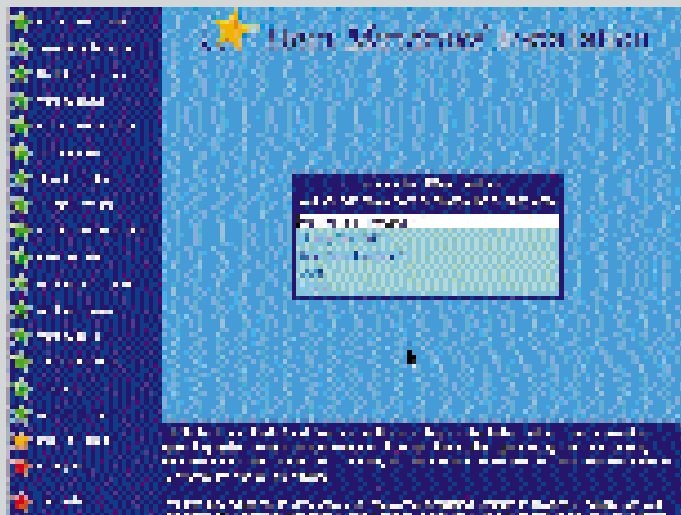
**2** At the Install or Upgrade screen, choose Install. Then choose your keyboard layout. Unless you're using Linux4Win, next comes the step which used to cause so many problems: partitioning. But using the Recommended install class, the installer does it all for you! Your Windows partition will be resized and the necessary Linux partitions created.



**3** If you've got a printer connected, you can set it up now. See section 7 of the Install Guide for details. It's not difficult to set it up after installation if you'd rather leave it. Next, you will be prompted to enter a root password. The 'root' user is the only person allowed to alter your system configuration, so make the password difficult and don't forget it! In the following screen, set up the user you will log in as for day-to-day tasks.



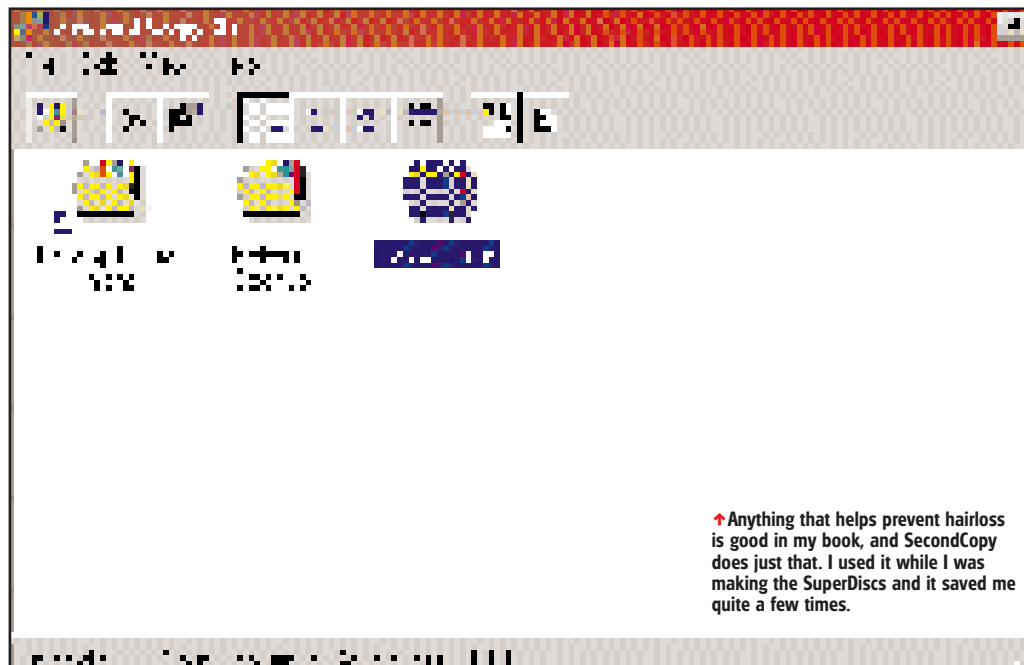
**4** You'll be asked to create a boot disk. Say yes and keep it somewhere safe. If anything goes wrong with Windows and you have to re-install, this will be your only way back into Linux. If you're using NT, you will need the boot disk to start Linux until you've added it to your WinNT/2000 boot loader (see the Linux+NT boot loader HOWTO at [www.linuxdoc.org](http://www.linuxdoc.org) for details).



**5** LILO, or the Linux Loader, enables you to choose whether to boot into Linux or Windows. For most systems, the installer will put LILO in the right place. But, if you're using WinNT/2000, Norton System Commander or a similar application, choose First sector of boot partition. Otherwise select First sector of drive.



**6** Finally, the installer sets up X Windows, the graphic interface. Unless your graphics card is very old, you should see the screen above. If it looks okay, click Yes before it times out, and also answer Yes to run the graphical interface when booting. Congratulations! You're done! (If you don't see this test screen, you will have to configure your card manually after install. See the Install Guide for details.)



↑ Anything that helps prevent hairloss is good in my book, and SecondCopy does just that. I used it while I was making the SuperDiscs and it saved me quite a few times.



Full Program

# SecondCopy 97

Ever pulled your hair out after losing a critical file? Give yourself a second chance with this backup facility from Centered Systems.  
**Paul Ravening** shows you how

**Y**ou've deleted an important file accidentally and to make matters worse, you suddenly remember deleting it after you've emptied the Recycle Bin. How many times has that happened to you? Well you don't need to worry any more. SecondCopy 97 is an invaluable program which enables you to keep a second copy of all those important files at different locations, perhaps on a Zip or Jaz drive. You can simply set it up and forget about it. SecondCopy 97 copies all the files you tell it to at specified intervals in the background, without manual intervention. Initially it copies all specified files. In subsequent runs, it only copies new or changed files.

There are a variety of ways you can copy files. Copying Source to Destination (simple copy), copies all the selected files to the destination folder, but not back again. Selecting Copy Source to Destination then

Delete obsolete file from destination makes sure the destination folder matches the source exactly by deleting any old references to the file and replacing it with a new copy. Move Source to Destination copies the files and then deletes them from the source drive. If you want to save a bit of space then you can compress the files into a PKUNZIP format which can be used with WinZip. Choose Compress source into ZIP file to do this.

Even more ingenious is the option to compress into ZIP, and delete obsolete files from ZIP. This means the program will realise if you delete a source file and remove it from the ZIP. Finally choose Synchronize Source and Destination to enable you to add or edit files as you wish, in either the source or destination folders.

It couldn't be easier to setup or maintain, and you'll quickly find it to be one of the most useful utilities on your systems.

**Paul Ravening**



## Upgrade offer

Upgrade to SecondCopy for the great price of only \$26.96 (approx £18) and save 10 per cent on the RRP

The major new features in SecondCopy 2000:

- Password protect profiles
- Organise profiles in groups
- Limit the log to only errors and summaries
- Detect file deletions during synchronisations
- Copy files based on archive bit instead of timestamp
- Auto log in to remote system with Dial up Networking
- Skip profile on designated days of the week
- View scheduling options more conveniently
- Easily toggle profiles between periodic and manual schedule
- Set compression ratio for ZIP drives
- Use the built in ZIP view to view, compress and extract any ZIP files
- Quicker editing of custom profiles
- Show source and destination in details view.



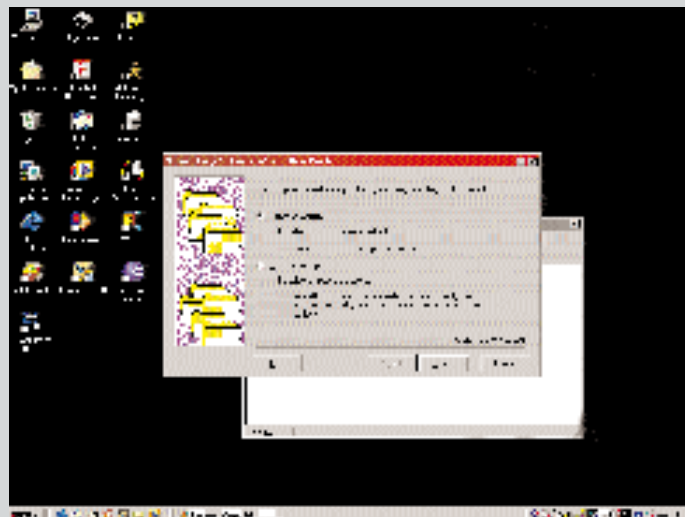
You can buy SecondCopy 2000 for \$26.96 (approx £18) so point your browser at <https://secure.element5.com/shareit/checkout.html?productid=133677> now, or follow the link from the SuperDisc to take advantage of this great offer.



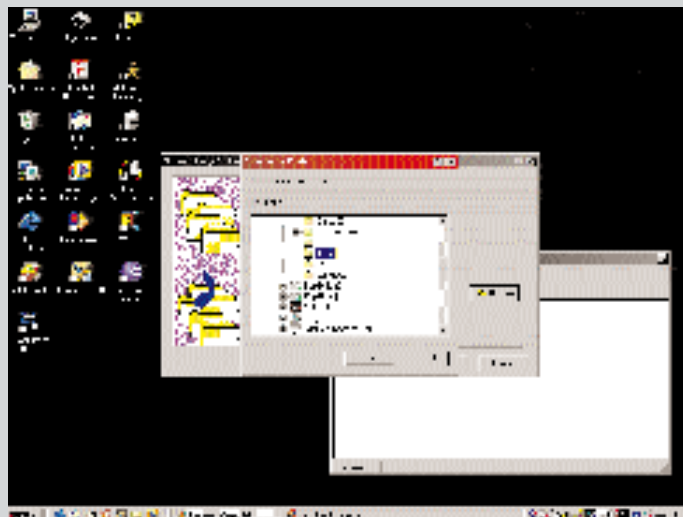
<https://secure.element5.com/shareit/checkout.html?productid=133677>

## → Getting Started with SecondCopy 97

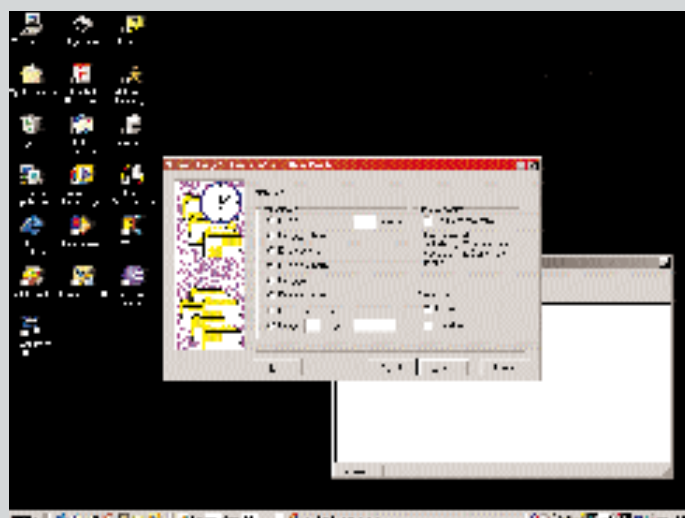
You'll soon be seeing double, with the help of our walkthrough



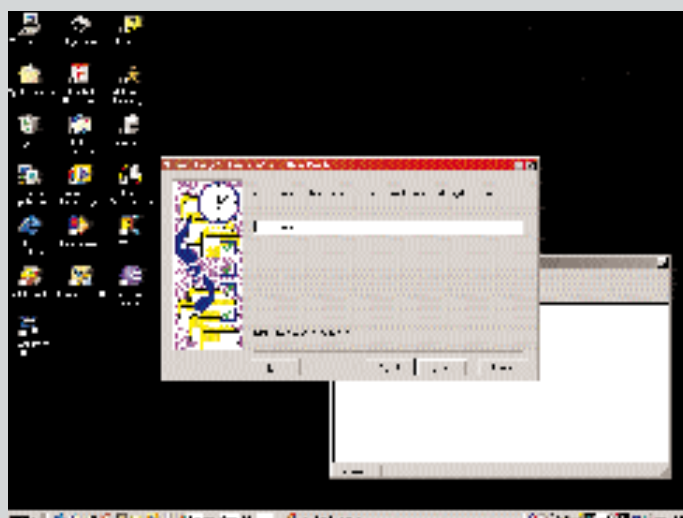
- 1** Click the New Profile icon in the toolbar. The profile Wizard appears, select Express Setup.



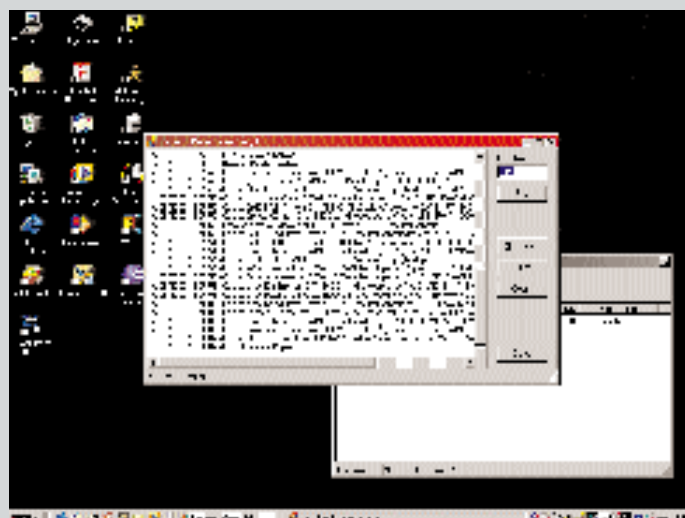
- 2** After deciding which folder you want to back up, select the destination folder. It might be best to select an external drive, such as a ZIP drive, so whatever happens to your PC, your data is tucked out of the way. If you are copying to a removable disk, you can specify a disk volume/label to copy to.



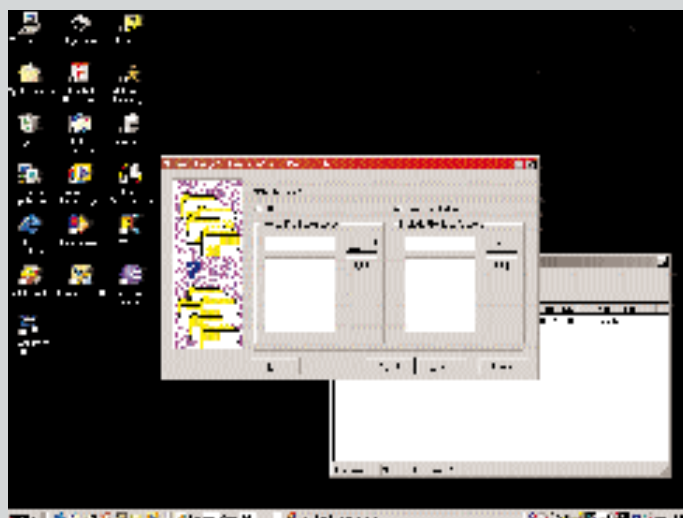
- 3** You are then asked to set when you want the program to copy. Several options are given for automatic backup at regular intervals or you can opt to back up manually. You can press Help at any time if you need any assistance.



- 4** After choosing a name for your profile, SecondCopy goes to work straight away and backs up the selected files. It subsequently runs in the background and monitors the profiles that need to be copied. When a copy is in progress, you'll see an animated icon in the System Tray.

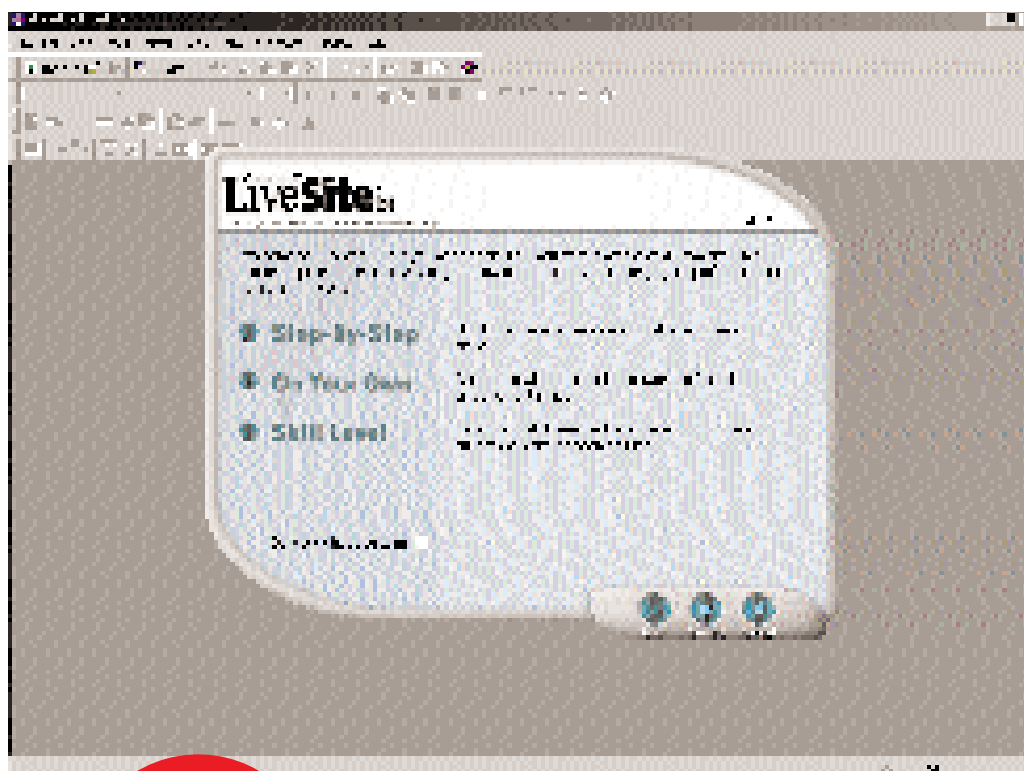


- 5** The activity log lets you know exactly what's been going on during the backup operation. It's handy for finding out why a certain file wasn't copied over (usually because the document was open at the time of copying). It can get full rather quickly, so Save As and clear it regularly.



- 6** To change the profile, highlight it and click Properties on the tool bar. You can then go into custom setup to change, for example, how the files are copied (see the tutorial on how to do this). Delve into SecondCopy 97's options and you'll find there's more than meets the eye.





Full Program

## LiveSite 2.0

Want a Web package you can tailor to your skill level? Look no further then LiveSite, from Valadeo Software

**U**sing Valadeo LiveSite, you can quickly and easily create a professional, attractive Web site and publish it on the Internet. You don't need to worry about learning HTML or about how Web sites work – just design your pages and let LiveSite take care of the rest.

One of the most impressive features about this product, though, is the ability to change your skill level within the program. If you're only just starting out in Web design, you can set the program up for beginners, which will limit the amount of things you can do, but will stop you damaging a project.

But if you can read out HTML tags in your sleep, set it up for Expert and the program will be opened up fully. Because LiveSite can be linked with both the Internet Explorer and Netscape browsers, you can quickly and accurately see the results your visitors will see when using those browsers. To turn your Web project into a Web site,

you need to publish your project to a Web Hosting Provider (WHP) who is using the LiveSite Server.

WHPs are the organisations that publish, host and maintain Web sites. Each WHP offers different hosting plans for your Web site. Valadeo hopes to have some UK based WHP's available soon. Watch this space and our Web site ([www.pcplus.co.uk](http://www.pcplus.co.uk)) for details.

### Project planning

What's a Project? Well the project you create in LiveSite will become your Web site when it's put on the Internet. A project has a project level, and a page level. Each level controls different aspects of your project. The following diagram illustrates how the levels in a Web project work together.

Your project contains all the information that makes up your Web site. When you save a project, you are saving all the related information as well. This makes it easy for you to pass your project to someone else. You can either start

using a blank project, use a template or use a project wizard. The project explorer helps you organise your project, keeping everything in view at once, much like a Windows Explorer view really.

Once you've created a project and filled in all the relevant info in

the Project Details screen, you can really begin to create. If you're using a wizard, the program will help you create a basic, but nice-looking Web site. If you're not, then have a go with the Design tools to build your perfect site, or brush up your HTML skills and try hand coding your pages. If you do get stuck, we've got the entire manual on the disc for you, you will need Adobe Acrobat installed to view it.

The Page window provides three different views of the open page. You create and edit the contents in Normal view. If you want to see what the HTML tagging looks like, click the HTML tab. The Preview view shows you what your finished page will look like to a visitor.

Because LiveSite is a WYSIWYG tool, you won't usually see any difference between Normal and Preview view. However, marquee text or links will only be active in

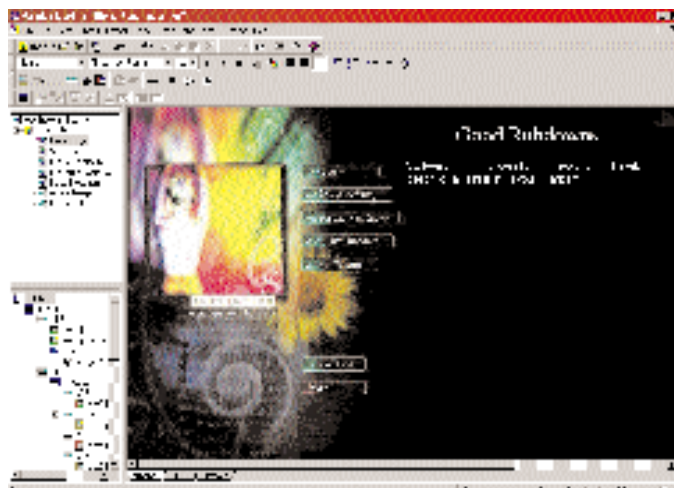
Preview mode. If you want to view the page in a full browser window, select Preview With

from the View menu, then select either Internet Explorer or Netscape Navigator. You can move a toolbar by clicking the bar at the left and dragging it to where you want it.

The Page Explorer offers a view of the major HTML tags in the open page, as a navigational aid. Click on a tag in the Page Explorer to select the corresponding item in the open page. Conversely, the Page Explorer reflects the cursor location in the Normal view window. The Page Explorer is updated as you edit; if you find editing is too slow, close the Page Explorer.

LiveSite displays the download time for the current page, based on the default connection speed. To see download times for other connection speeds, right-click here and select the connection type.

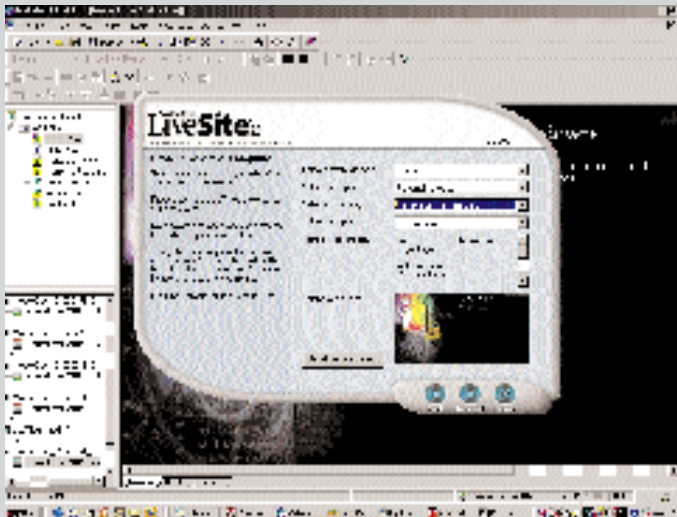
**Paul Ravening**



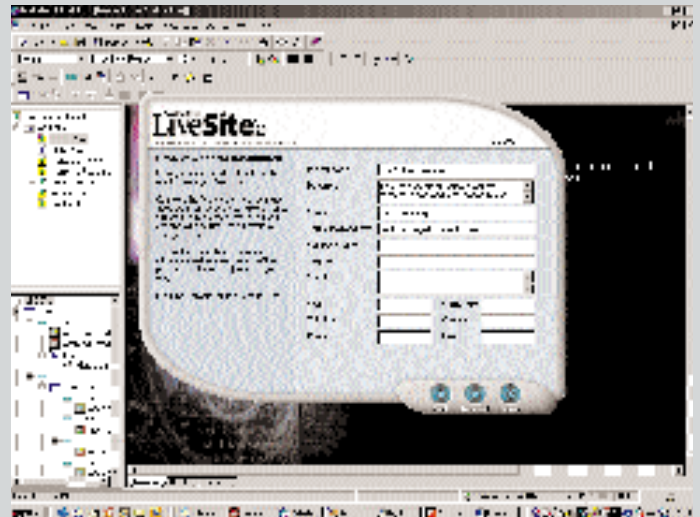
↑ The Project Explorer shows you the structure of your project. Click on a page in the Project Explorer to open it in Normal view.

## → Creating a project in six easy steps

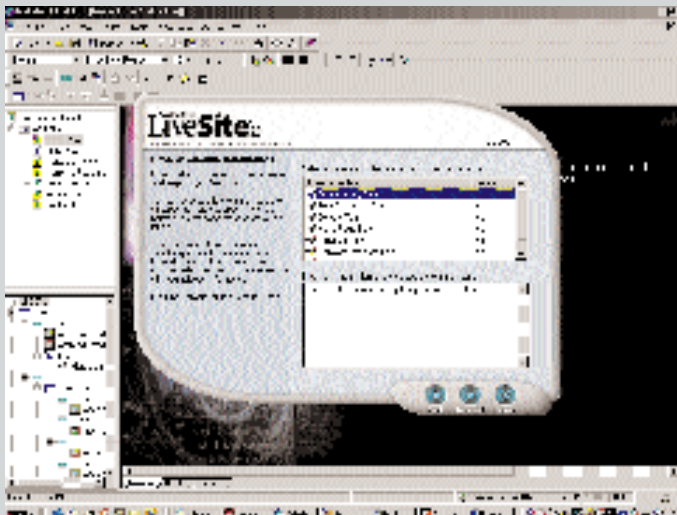
Getting to grips with LiveSite 2.0



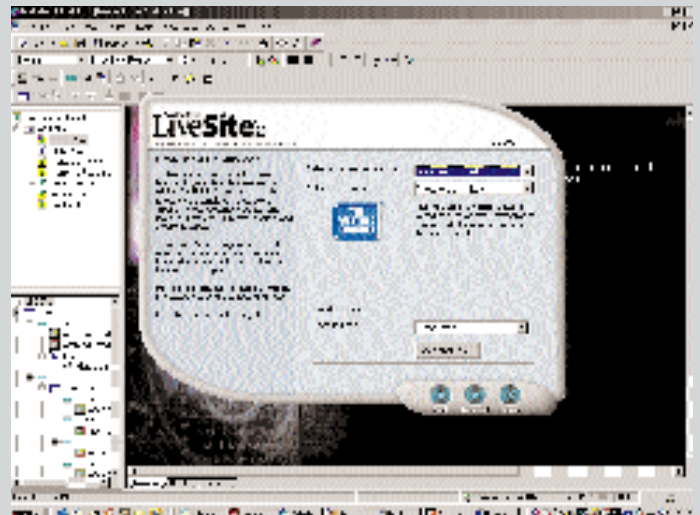
**1** The wizards in LiveSite enable you to start creating a great site quickly. This is stage one of the default wizard. Simply choose the options from here that suit the site you wish to build and then click Next down at the bottom of the screen.



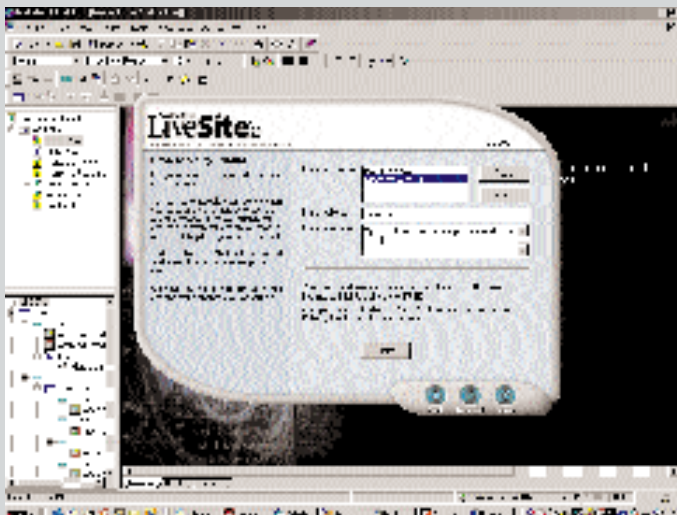
**2** Step two is General Information. Here you'll put in as much information as you want about you and your company. Make sure it is correct, as LiveSite will refer to this section to automate some of the features of your Web site.



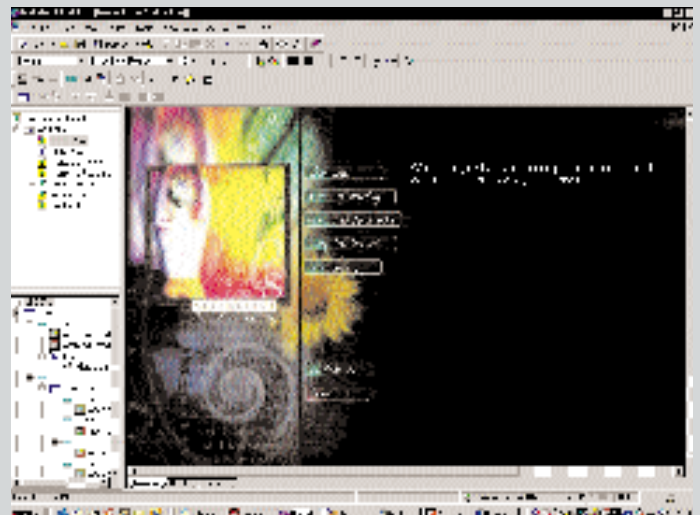
**3** The program has created sub pages for your project and now wants you to enter some information for each one. Seeing as we're creating a page for a beauty salon, we have choices such as make-up and body treatment. Type the information in the bottom window, and click forward to carry on.



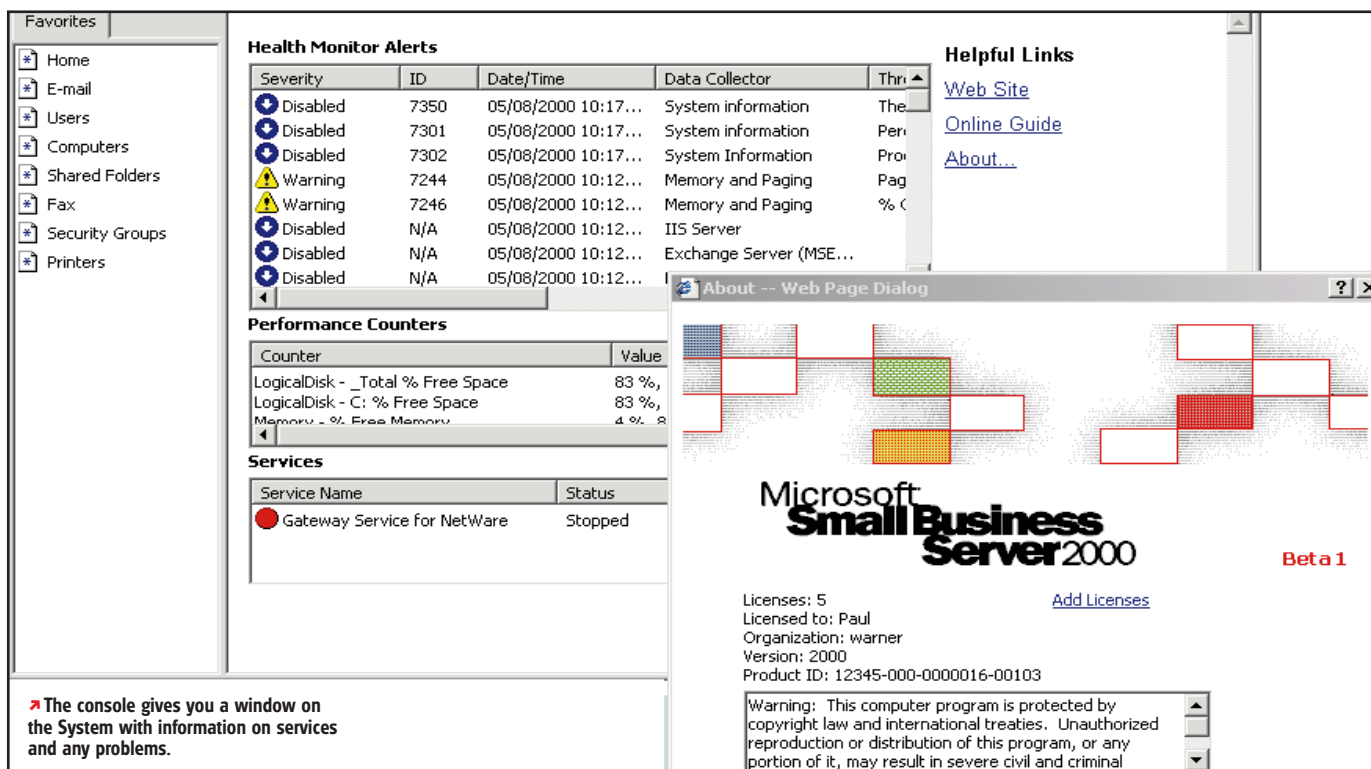
**4** In step 4, all the services available to you will be displayed. If you wish to use one, simply choose it from the list. Services can supply all types of different information, from the weather to maps. Once chosen, tell the program where to put it with the second set of boxes at the bottom of the screen.



**5** If you want to send out invitations to your Web site to your friends and colleagues, then enter their e-mail addresses. When you publish your page, a mail will be sent automatically to your contacts informing them about your new arrival.



**6** And there you have it, your new Web site. You can now add more text to it, or pictures, videos and much more. If you're new to HTML, click the HTML tag to have a look at what makes your site tick.



## UNDER DEVELOPMENT

# Microsoft Small Business Server 2000

**PRICE** TBA **SUPPLIER** Microsoft **PHONE** 0345 002000 **ONLINE** [www.microsoft.com/smallbusinessserver/](http://www.microsoft.com/smallbusinessserver/)

**Microsoft's 2000 server for the business user will soon be with us. Paul Warner checks out the latest beta**

### Tested on

Athlon 600

### Client Requirements

Pentium 90MHz or greater processor; 32MB of RAM recommended; 300MB of available hard-disk space; 3.5-inch floppy disk drive; Ethernet network card; VGA-compatible display

### Server Requirements

Pentium II 300MHz or higher processor; 256MB of RAM; 512MB recommended for heavy server use; 4GB hard disk space; 2x8GB disks recommended for fault tolerance; Super VGA-compatible display capable of 256 colours; Ethernet network card. To use the fax service, you must have a dedicated Class 1 fax modem in addition to at least one other modem to be shared for other server services such as RAS, proxy dial-up, and/or modem sharing

**A**longside the introduction of Windows 2000, we're starting to see some of Microsoft's NT server products appearing in its 2000 guise. One that is going to be in the market place soon is its Small Business Server 2000. We've had a chance to look at a late beta which gives us an idea of what we can look forward to when the full release appears.

Built as a successor to SBS 4.5 for NT, 2000 has several new features that aim to give a solid platform for the introduction of Microsoft's bCentral .NET services and is aimed at small businesses with up to 50 PCs. This gives a greater Internet bias and is aimed at the development of e-commerce solutions for small businesses. Most of the common server applications have been bundled, so with an expected price of £1,000-£1,500, shows a considerable saving over buying the individual products. The main features are based on Networking with Windows 2000 Server.

Microsoft Exchange 2000 Server supports a wide range of collaborative activities, including group scheduling, discussion groups and team folders. With built-in content indexing and search, users can find and share information quickly. Also

included are several powerful workflow tools and with the Web Storage System you can use Web-standard Extensible Markup Language (XML) and Hypertext Transfer Protocol (HTTP), these could be used to build a hosting platform, customer service system or a knowledge base.

Several new features are introduced in Exchange. Active directory enables system administrators to create a single point of management for all users, groups, network login, configuration data, file and Web shares. Storage Groups work in a similar way, giving a single point for administering databases. These are grouped into a single transaction log and enable you to back up a set of data in one group.

### SQL Server 2000

SQL Server now has tools for manipulating XML inside the database, and enables developers to retrieve XML-based data from the database without writing code. It is now much easier to use the OLAP services, now called Analysis Services, as a data-mining engine is built into the server.

SQL Server 2000 English Query enables end users of all skill levels to query the database in English via the Web. English

Query translates a user's question into a proper database query and returns the desired results from the relational store or Analysis Services

### Internet Security

This supplies an Internet Firewall and Proxy Server for users and has new Wizards to simplify connection. Mobile users can connect to the SBS over the net – a neat way to make international calls from your mobile for the cost of a local call.

Other improved features are Shared modem and fax services, Internet security and many improved or new wizards to simplify maintenance and connectivity.

### Initial impression

This upgrade brings SBS up to date with the whole 2000 ethos. It's directly aimed at managing a fully-featured network for a business user with up to 50 PCs. It has been simplified by the addition of wizards to help the new user. Group policies make it a lot easier to work with clients, but the main thrust is, again, toward Internet connectivity, making it simpler to use, manage and open up the whole raft of e-commerce possibilities **PCP**



## UNDER DEVELOPMENT

## Macromedia Flash 5

**CONTACT** Macromedia **PHONE** 01344 458 600 **ONLINE** [www.macromedia.com](http://www.macromedia.com) **RELEASE DATE** September 2000

**The next version of Flash is coming soon. Simon Bisson takes a wander through the beta code, and finds something very interesting indeed...**

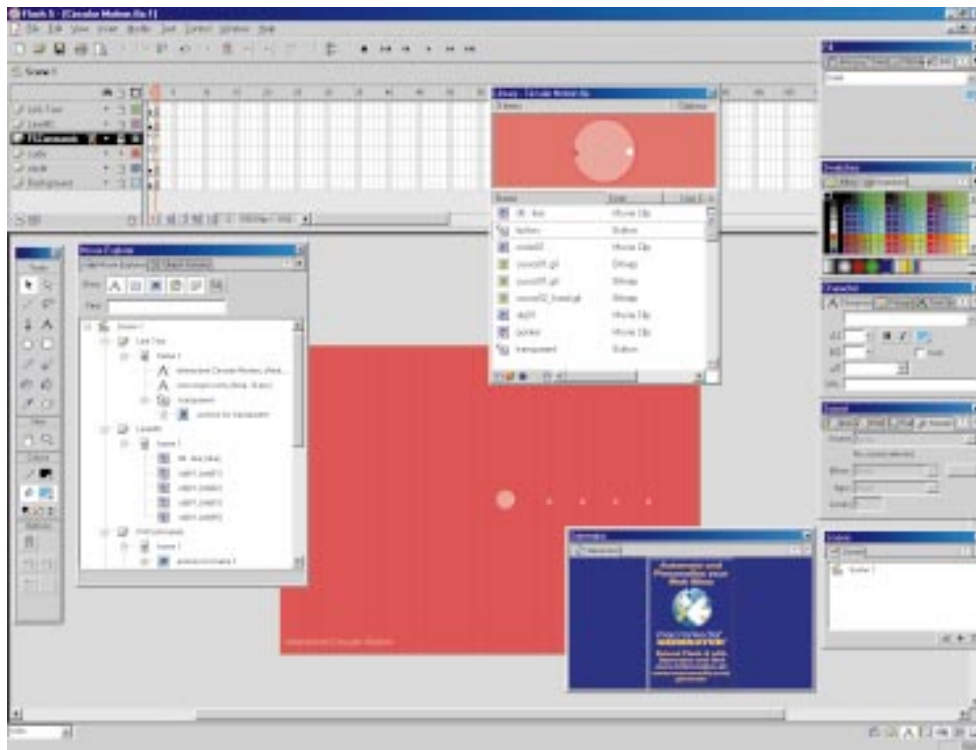
If you've taken a Web browser for a spin recently, you're almost guaranteed to have found yourself on a site that uses Flash. This isn't surprising as these days Flash is pretty much the de facto standard for Web animations. Not bad for what was once a small Windows-only vector animation tool. Now, 4 versions later, it has grown into something much larger, with players for virtually every platform currently available.

In order to capitalise on Flash's success, Macromedia has also opened up sections of Flash to third parties, by detailing the file format and providing source code to the Flash player. So you don't need to get the Flash design tool to create Flash animations, as packages using the Flash file format now include CorelDRAW, Adobe LiveMotion and the shareware Swish text animation tool. With so many Flash-capable animation packages out there, Macromedia now has to keep adding innovative new features to Flash in new versions, taking advantage of the competitive landscape it has created.

As a result of this policy, Flash 5 contains more design tools than before, as well as closer integration with the other Macromedia design tools – including the Dreamweaver Web page design suite and the Freehand drawing package. Flash 5 is intended to be an everyday part of the Web designer's toolbox, not something just pulled out when an animation is required.

Regular Flash users will find that Flash 5 has a familiar user interface. Once you get started you'll find that there are some changes, but these are really intended to bring Flash, Dreamweaver and Fireworks closer together. Like Flash 4, Flash 5 is easy enough for beginners to use, while giving experienced designers access to the power tools they need to create complex Web user interfaces.

One of the new user interface components is the new Macromedia Dashboard, which is a pointer to the online community Macromedia wants to build around Flash and its users. I found the Dashboard a welcome addition to Flash, giving you access to online resources without having to switch to a browser. As Flash can fill a small screen, this is more important than you might initially think! The Dashboard wasn't fully functional in our beta copy, with only a few sample pages. I'd like to see more of what Macromedia is promising here, but you won't see the full benefits of the Dashboard until a lot of people are using



Flash 5, as the most important feature of the Dashboard are the other developers using the service.

While Flash isn't a drawing or a design package, a lot of designers use it to draw the elements they include in their animations. Macromedia recommends that you import images from Fireworks or Freehand (and adds improved tools for integration including the ability to work directly with Freehand storyboards), but it has also added a set of new drawing tools to Flash 5. These include a bezier pen tool for drawing complex curved objects, and a sub-selection tool that enables you to modify existing objects. Just use one of the standard graphics primitives, and then use the sub-selection tool to tweak and twist it into something very different. If you've used Freehand, then you'll find this feature familiar as it's part of Macromedia's move to a common user interface for all its design tools.

The Web is now a lot more than just static Web pages and simple animations. With DHTML and other technologies, Web pages have become applications in their own right. Macromedia began to turn Flash into a tool to create complex Web application front-ends in Flash 4. This introduced tools that enabled you to add simple scripted behaviours to your animations, helping you create complex

animations and games. Things have gone a whole stage further in Flash 5. Now Macromedia has exposed the tools that allowed Flash 4's actions as a complete language: ActionScript.

Macromedia has been adding programming tools to its Web development environments for some time now. While Flash 5 isn't extensible like Dreamweaver or Fireworks, the addition of ActionScript adds a whole new dimension to your Flash movies. ActionScript isn't that difficult to learn, especially if you're familiar with JavaScript, as it uses the same syntax – so if you've been using Director and its scripting language Lingo, you'll need to learn another. Flash 5 includes an editor palette that enables you to develop ActionScripts for the elements in your movies. This can switch between a Normal drag and drop development to an Expert text editor for the more experienced programmer. Of course, our code doesn't always work first time, so Flash 5 includes an ActionScript debugger, as well as a feature that enables you to reuse snippets of code between movies. While the new drawing tools and data connections are all powerful tools, I felt that ActionScript was the most significant feature of Flash 5, as it turns what was once an animation package into a very powerful tool for the creation of

↑ Flash 5 has plenty of panels and palettes – enough to make you wish for a larger screen! The new look and feel is much closer to other Macromedia tools like Dreamweaver.

#### Requirements

Recommended hardware  
PI33, 32MB RAM  
Operating system  
Win95/98/NT 4.0, 2000



# UNDER DEVELOPMENT

Web-based application user interfaces.

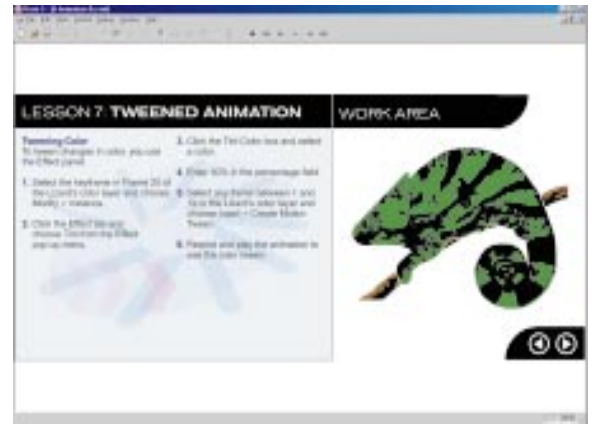
Another feature introduced in Flash 4 was the ability to use Flash movies to deliver content to server applications by using HTTP form submissions. While you can still do this in Flash 5, it takes this a whole further step forward by adding the ability to make XML connections to remote servers, so you can send and receive XML data to and from your Flash movies. While this may not seem useful at first, you'll find it more and more useful. One of the main reasons you'll end up using this feature is the arrival of application server environments like the open source Enhydra or Microsoft's Biztalk that use XML as a common data exchange format. If you want to use this feature you may need to do some work in updating your applications to take advantage of XML. However, once you've made the change you can start to create e-commerce applications that use ActionScript to process XML data and then display the results in your Flash movies, turning Flash into a universal Web user interface.

Web development stopped being something one person working alone could handle quite some time ago, but Web design tools have never really caught up. Flash 5 is still a single user tool at heart, but Macromedia has made

some concessions to teams of developers in the shape of Flash 5's Shared Symbol Libraries. Using these you can share animation assets between developers, by creating external symbol libraries. These can also reduce download times for Flash-heavy Web sites, by keeping all the common image components that are required in several different Flash movies in a single library file – so that a single download places all the images you've created in the correct place ready for use.

The new Movie Explorer also helps large teams with the complexities of Web user interface development. In the same palette as the ActionScript editor, the Movie Explorer gives you the Flash movie equivalent of a Dreamweaver site map. With this you can see a structured, hierarchical view of all the elements in a movie, and with the Explorer, jump quickly to the element you need to edit. It's a pity that this has to share a palette with the ActionScript editor, as these are the two tools I'd like to see open all the time.

One of the more unusual features of Flash 5 is its ability to create what Macromedia calls WYSINWYP – What You See Is Not What You Print – documents. You can create simple Flash movies that allow your users to print larger, completely different documents with the Flash player.



This may not seem to be useful at first, but with this technology you can turn a Web banner into a fully-fledged print advert that downloads and print at a click of a button.

With the release of Flash 5, Macromedia is starting to take Flash to new places. Macromedia is targeting Net appliances, as well as desktop computer browsers with Flash 5. A version of the Flash player will be released for Microsoft Pocket PC and devices based on the Symbian EPOC OS by the end of the year. This will be very small – with the Pocket PC player coming in at about 200KB.

Flash 5 is a significant release for Macromedia. As Adobe's LiveMotion 1.0 is offering Flash 4 some serious competition by linking Flash animations to Photoshop, Macromedia had to pull out all the stops with Flash 5. From the beta code that Macromedia has released, it appears that it has more than succeeded in turning what started out as a simple animation tool into a complete Web user interface development environment. Hard-core application developers will find the XML integration and ActionScript powerful additions, while Web designers will get the most out of the move to a common Macromedia user interface and the addition of new drawing tools. 2000 AD is shaping up to be a big year for Macromedia and Flash 5 is a significant part of their future – and the future of the Web... **PCP**

↑ You don't need to worry if you've never used Flash 5 before, as a set of tutorials are included and an excellent help system is just a click away. The tutorials are Flash movies, so you can also dissect them to see just how Macromedia puts movies together.



↑ Flash 5's Dashboard promises to give you access to support tools – and other Flash developers – without having to leave your movie. So if you get stuck there's now somewhere to turn to.



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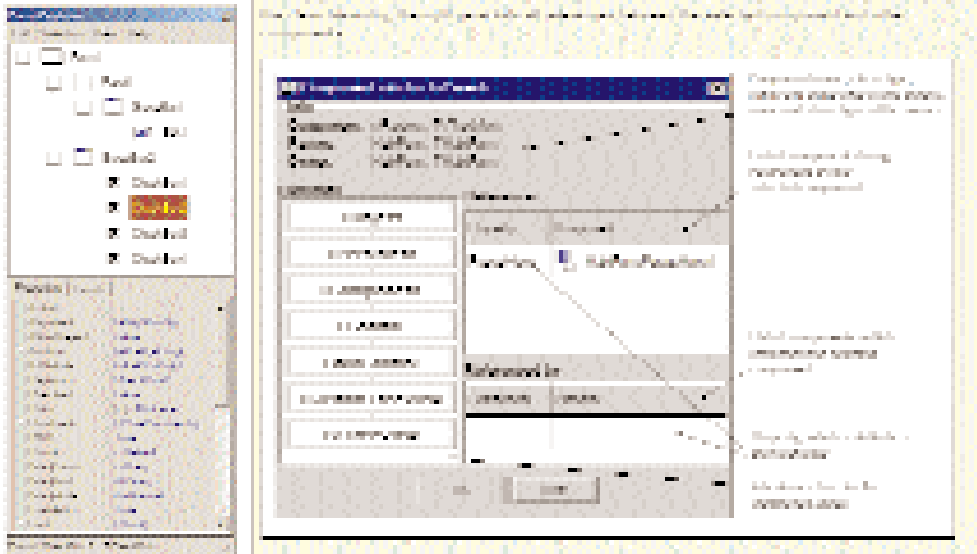
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↓ Here's Form Explorer running in 'Integrated' mode. We found that Form Explorer worked much better (and so did Object Inspector!) when they were configured as separate, dockable windows.



PROGRAMMING

# Form Explorer for Delphi 5 v2.01

PRICE \$20 for a single user SUPPLIER Vladimir Vinogradsky  
ONLINE <http://members.xoom.com/VladimirV/> PUBLISHER Vladimir Vinogradsky

Form Explorer for Delphi is one of the less ambitious ISE add-ons, but does it give you enough functionality?

One of the great things about Delphi and C++ Builder is the way in which these development systems can be extended using what Borland refers to as its Open Tools API. The quintessential add-on for Delphi is, of course, the awesomely huge CodeRush system available from Eagle Software ([www.eagle-software.com](http://www.eagle-software.com)) but if you've no experience with IDE add-ons, you might wish to start with something a little less ambitious such as Form Explorer. Then again, you might not.

In the glowing words of its author, Form Explorer is a 'supercharged Object Inspector' for Delphi. In effect, Form Explorer enhances the Object Inspector window within the Delphi IDE. You'll also notice from the product title that it's specific to Delphi 5. This is because of the way in which Form Explorer needs to get into the undocumented internals of the IDE in order to work its magic. In fact, the author, Vladimir Vinogradsky, recommends that ideally, you should be using the latest build of Delphi 5, Update Pack 1, which I was.

- Minimum requirements Win95/98/NT/2000, 32MB RAM, Delphi 5, 500KB disk space
- Tested on Win2000, 500MHz Intel, 256MB RAM
- Available on Web download
- Additional information A 30-day trial version of Form Explorer can be freely downloaded from the author's Web site

With Form Explorer installed, you'll find that the Object Inspector has acquired a new, hierarchical tree-view pane which graphically displays all the components associated with the current form. This window can be disconnected from the Object Inspector and docked to other IDE windows just like the 'native' dockable tool windows that form part of 'barefoot' Delphi. You can 'drill down' into container classes such as group boxes, panels, and so forth, viewing the components contained therein. Probably the nicest single feature of Form Explorer is the way in which you can drag one or more components from one container to another, or to the topmost form. As seasoned Delphi developers know, cutting and pasting components from one container to another is generally a very frustrating exercise, causing component references to be lost, property values to get reset to their default values and worse. Using Form Explorer eliminates these problems. The add-on itself consists of a single 300KB DLL which is automatically installed into the Delphi IDE when you

run Form Explorer's set-up program. There are various summary windows which can be invoked from Form Explorer, including a component information window which gives a graphical display of the class hierarchy associated with the currently selected component. This window also shows which controls refer to the current component, which controls it refers to, and so on.

On the negative side, I felt that the Form Explorer window had a rather amateurish, clunky look and feel, with a solid white background which couldn't be changed. By default, the tree view displays components as 28 x 28 pixel bitmaps (same size as the component palette) which makes them look far too big. They can be reduced to 20 x 20

← Despite its other shortcomings, Form Explorer does include some good documentation, with screenshots and explanations of the major parts of the utility.

pixels, or you can choose not to display bitmaps at all. Much more annoying is the way in which things rapidly go pear-shaped when using Form Explorer

in so-called 'integrated' mode, that is, with Form Explorer connected to the Object Inspector window itself. For example, go to the Name property of a component in Object Inspector, select the last couple of characters and hit the 'Del' key to remove them. You'll instantly see a dialog box asking if you really want to delete the component. I could give you more examples of the same but, in a nutshell, Form Explorer tries to take responsibility for Object Inspector's keyboard processing – and often gets it wrong. I found that integrated mode was buggy and unusable, the IDE being much happier when Form Explorer was configured as a separate, dockable window.

I felt that the amount of useful extra functionality provided by Form Explorer was disappointingly small, especially when balanced against the buggy quality of the software and the poor user interface. The only thing going for it is the ability to quickly drag a control from one container to another, but if you switch a standard Delphi form into View As Text mode, you can do the same thing using the built-in text editor!

Dave Jewell

PCPlus Verdict

FORM EXPLORER FOR DELPHI 5 V2.01

✓ FOR

→ Makes it easy to drag a control between different components

→ Cheap

✗ AGAINST

→ Brings very little new functionality to the party

→ User interface is awkward and buggy

Specification.....4

Quality.....6

Performance.....5

Value for money.....7

OVERALL.....6